

# **Postgraduate Prospectus**





#### Postgraduate Prospectus 2012

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### **MESSAGE FROM THE RECTOR**



In today's competitive context, graduate studies are seen as a necessary extension of a society's tertiary education. The pursuit of graduate studies, whether for purposes of specialization or for further delving into a research subject, is crucially important, as it determines the professional development and spiritual growth of an individual.

The University of Cyprus, aiming both to offer students a wide variety of graduate study options and to address the needs and expectations of Cypriot society, has encouraged all departments to add programmes of graduate studies at both master and doctoral levels. Specifically, the University currently offers 56 graduate programmes at the master level and 37 at the doctoral level, in 22 departments. At present there are 1742 students enrolled in graduate studies.

The University anticipates the further growth of its graduate education with the Graduate School that has recently been established. A Graduate School, based on European specifications and fully attuned to the performance standards of renowned international research institutions, will contribute to consolidating existing postgraduate education, while simultaneously strengthening the University's research productivity and its links with the world's best universities.

Presently, through the existing graduate programmes of the University of Cyprus, students have the opportunity to either specialize in an area directly related to their first degree or, alternatively, to expand their knowledge to areas outside their first degree. An inextricable part of graduate education is the acquisition of skills for continuous learning and research.

The University encourages excellence in academic performance by awarding an array of scholarships annually. In parallel, this is enhanced by offering graduate students the opportunity to participate in seminars, conferences, exchanges and other activities. Our graduates are highly successful in the workplace, employed in local enterprises, as well as in international research centres.

Those interested in the University's postgraduate programmes will find in the present publication all the information necessary to make an informed decision.

Constantinos Christofide

Professor Constantinos Christofides Rector

# CONTENTS

Message from the Rector	3
General Information	6
Postgraduate Studies	16
FACULIY OF HUMANITIES	
Department of English Studies	30
Department of French Studies and Modern Languages	34
Department of Turkish and Middle Eastern Studies	42
FACULTY OF PURE AND APPLIED SCIENCES	
Department of Biological Sciences	48
Department of Chemistry	62
Department of Computer Science	74
Department of Mathematics and Statistics	82
Department of Physics	94
FACULTY OF SOCIAL SCIENCES AND EDUCATION	
Department of Education	102
Department of Law	146
Department of Psychology	148
Department of Social and Political Sciences	170
Department of Economics	178
Department of Public and Business Administration	188
Centre for Banking and Financial Research	204
FACULTY OF ENGINEERING	
Department of Architecture	208
Department of Civil and Environmental Engineering	214
Department of Electrical and Computer Engineering	228
Department of Mechanical and Manufacturing Engineering	240
FACULTY OF LETTERS	
Department of Byzantine and Modern Greek Studies	256
Department of Classics and Philosophy	262
Department of History and Archaeology	266
Interdepartmental Programme in Byzantine Studies	278
Annendices	
	202
Calendar of Academic Year	292
Organisation Chart	293
Governing Bodies	294
Telephone and Fax Directory	290
relephone and rax Directory	500

# **GENERAL INFORMATION**



# **General Information**

The University of Cyprus was established in 1989 and admitted its first students in 1992. Admission to the University is by national entrance examinations and the competition for places is intense. Many University of Cyprus graduates have been accepted for postgraduate studies - most with full scholarships - in some of the most reputable universities internationally.



#### THE UNIVERSITY OF CYPRUS

#### **Main Objectives**

The main objectives of the University of Cyprus are twofold: the promotion of scholarship and education through teaching and research, and the enhancement of the cultural, social and economic development of Cyprus.

In this context the University believes that education must provide more than simply accumulation of knowledge.

It must also encourage students' active participation in the process of learning and acquisition of those values necessary for responsible and active involvement in the community. The University sets high standards for all branches of scholarship. Research is promoted and funded in all departments for its contribution to scholarship in general and for its local and international applications.

#### **Research Activity**

Original research is one of the primary activities of the academic staff at the University of Cyprus. This research may also involve undergraduate and postgraduate students, and research assistants.

The University's research programmes cover a wide range of fields that correspond to existing specialisations and departments. They are funded either through the University's budget or by institutions in Cyprus (such as the Leventis Foundation, the Cyprus Research Foundation) and abroad. European Union projects (including the 7th Framework Programme, INTERREG, COST, ERC, LEONARDO, LLP) constitute the majority of externally funded projects. For the achievements of the academic staff in research and innovation, the University of Cyprus is recognised through international awards and it is favourably classified after international evaluation.

The University is a member of a number of international university organizations and networks. It also cooperates, through inter-state and inter-university agreements, with universities and research centres in Europe and internationally, for the promotion of science, scholarly research and exchange of information. The University, within the framework of its social contribution, cooperates with various institutions in Cyprus on research programmes that are specifically aimed at the needs of Cypriot industry and the economy in general.

#### **Research Centres/Units**

A number of research centres and research units operate at the University of Cyprus as independent, non-profit organisations committed to conducting rigorous and innovative research. The research centres and units aim to develop research at a local, European and international level in their specific scientific fields, and attract a large number of research programmes, funded by research promotion organisations in Cyprus and abroad. Research programmes that apply directly to Cyprus are considered as particularly important, as they make a significant contribution to Cypriot society, specifically in the sectors of economy, industry and culture.

The following research centres/units operate at the University:

- Archaeological Research Unit
- Centre for Gender Studies
- Economics Research Centre
- Centre for Banking and Financial Research
- Hephaistos Nanotechnology Research Centre
- Kios Research Centre for Intelligent Systems and Networks
- International Water Research Institute
- Oceanography Centre

#### **Academic Faculty**

The academic faculty is international, comprising Greekand Turkish-Cypriots, as well as scholars recruited from abroad.

#### **Governing Bodies**

The University is a public corporate body. It is governed by the Council and the Senate. The Faculties and Departments are administered by Boards; each Faculty is headed by a Dean; and each Department is headed by a Chairperson (see relevant Appendix).

#### **Administrative Bodies**

The Administration is composed of the following Services:

- Academic Affairs and Student Welfare
- Financial Services
- Human Resources
- Information Systems Services
- Library
- Research and International Relations Service
- Technical Services

The overall administration of the University is currently the responsibility of the University Council and the Senate.

Administrative services provide the infrastructure and support required for the implementation of the University Council's decisions and policies. A committed staff promotes and assists the University's goals for education and research.

The Director of Administration and Finance (Secretary General, Registrar elsewhere), a non-voting member of the University Council and the Senate, is responsible for the organization, coordination and development of the administrative services of the University, as well as the implementation of the University's development plans. He advises the Council on matters within his jurisdiction, including financing, budgeting, personnel, external affairs and projects, student affairs, facilities (planning, operations), etc.

#### UNIVERSITY BUILDINGS

The University is currently housed in the recently built facilities at the new University Campus, the former Pedagogical Academy of Cyprus, in other owned or rented buildings as well as a cluster of buildings at Latsia. The historic building complex (Central Campus) of the former Pedagogical Academy was fully renovated, while retaining its architectural style, to meet the requirements of a modern university. In this Campus, two additional buildings have been constructed: the New Wing (Building E) and Wing B (Building B). In addition to the main buildings, the University owns or rents other buildings in the same area to cover its housing needs until the completion of the New Campus (see relevant Appendix).

The Campus Development Office was established to supervise the project of the New Campus and is responsible for its management, coordination and development. Architectural competitions ensure that the University secures the best designs and construction management for the various buildings on the New Campus. Upon completion, the University Campus will be able to accommodate a total of 10.000 students.

To date, the basic infrastructure of the University Campus, as well as the Services and Stores Buildings, the Student Residences (Phase 1a), the Faculty of Pure and Applied Sciences including the Common Teaching Facilities, the University House "Anastasios G. Leventis", which houses the management and most of the administrative services of the University, and the Sports Facilities, are already in operation. In October 2009, the extension of the Faculty of Pure and Applied Sciences was completed. It will temporarily house the Department of Biological Sciences and other operations of the Faculty.

The construction of the Faculty of Economics and Management including the Common Teaching Facilities II, as well as the Social Facilities Centre were completed in 2010. The construction works for the Learning Resource



Centre - Library "Stelios Ioannou" have already commenced. In 2010 the architectural competition of the permanent facilities of the Faculty of Engineering was completed and its design has been assigned. The architectural competition of the Department of Biological Sciences and the Common Teaching Facilities III was launched in 2010.

#### LIBRARY

The mission of the University of Cyprus Library is to maintain a comprehensive and up-to-date information environment that will support and enhance learning at the University of Cyprus as well as benefit the wider society. The Library also works to develop strategies and systems that facilitate access to and diffusion of its resources.

The Library is hybrid; that is, it contains print, digital and audiovisual material. The print material is searchable through the online catalogue, while the digital material can be accessed via the Library's website, at http://library.ucy.ac.cy/.

#### **Library Collections and Branches**

The Library collection is housed in five branches and is freely accessible. The collection comprises books, periodicals, reference material (dictionaries, encyclopedias), etc. All Libraries and Branches have reading rooms, workstations for access to the electronic resources (databases, electronic journals and books, digital collections), lending facilities, and photocopy machines for reproduction according to the copyright law.

#### **Main Library**

The Main Library is located on the University Campus at 75 Kallipoleos Street. It holds the largest open-access collection of books and reference material, as well as numerous special collections including the Browning, Milliex, Diamantis, Dervis, Dimitsopoulou collections.

#### **Periodicals Library**

The Periodicals Library is located in the new wing of the University Campus at 75 Kallipoleos Street. Its collection includes 5.400 print journals.

#### **Archeological Collection**

The Archaeological Collection is housed at the premises of the Archaeological Research Unit (EMA), located at 12 Gladstone Street. This non-lendable collection consists of 23.400 books and 400 journals, as well as the Pallas Byzantinological Collection.

#### **Turkish Studies Collection**

The Turkish Studies Collection is located at 10 Halkokondili Street, near the University Campus at 75 Kallipoleos Street. This collection comprises 25.000 books, and 700 print journals. It also includes several special collections, such as those of Halasi-Khun Tibor, Andreas Tieze and Louis Bazin.

#### **Larnakos Avenue Branch**

The Branch is situated at 167 Larnakos Avenue, near the University Campus. This Branch houses material related to the Pure and Applied Sciences, Engineering Science, Economic and Management Sciences.

#### **Strovolos Branch**

The Strovolos Branch is a closed-access stack room, and is not open to the public. Material from this branch will be transferred to the Main Library within one working day following receipt of an online application.

#### **Information Resources**

The Library has a wide variety of information resources: print, electronic and audiovisual. Electronic resources are available through the Library's individual subscriptions and participation in the Association of Cypriot Academic Libraries and the Hellenic Academic Libraries (HEAL-Link).

#### **Books**

The Library collection includes 306.000 books and print journals. Books are classified according to the Library of Congress Classification System and are searchable through the online public access catalogue.

#### **Electronic Books**

The collection includes 50.000 electronic books and is accessible through the Library website. Access to the collection is possible only within the University network.

#### **Databases**

Users, via the Library website, have access to 230 bibliographic databases, statistical and economic databases, full-text collections, etc. The databases are organized and searched in alphabetical order and by subject. Access to the collection is possible only within the University network.

#### **Periodicals**

#### **Print Journals**

There are 6.500 Greek and foreign print journals, which can be searched through the online public access catalogue.

#### **Electronic Journals**

Those who are connected to the University network have access to 30.000 electronic journals from the Library website.

#### **Digital Collections**

The digital archive of the Library includes rare print and audiovisual sources. The Library aims to preserve the sources and provide access to all members of the UCY academic community and the public in general. The digital collections available through the Library website are the following:

- the digital collection of SIMAE (Council of Historical Memory of the Liberation Struggle of EOKA 1955-1959);
- indicative sample of the KEE (Cyprus Research Centre) collection, which is of historical and cultural interest;
- Greek literature journals of the 19th and 20th century digitized by the E.L.I.A (Hellenic Literary and Historical Archive);
- the Greek Library and Information Science Database (E.Vi.Va), which contains the proceedings of the Pan-Hellenic Conferences of Academic Libraries, journal articles, conference and meeting presentations in Greece on the subject of Library and Information Science.

#### **Reference Material Collection**

In addition to the electronic reference collections, there are also available a variety of print reference materials (encyclopedias, dictionaries, etc.). The reference material is located near the Library entrance. Users can search the material through the online catalogue.

#### **Audiovisual Material Collection**

The collection is located at the Main Library and includes CDs, DVDs, maps, audio cassettes, microfilm, microfiche, etc., as well as the equipment required for educational and research use of this material. The collection, in total, comprises 9.000 titles that are searchable through the Library catalogue and/or the Library website.

#### **Using the Library**

#### **Regulations on Library Use**

All members of the University of Cyprus (students, faculty and administrative staff) as well as external users are free to use the Library facilities, services and collections.

#### **Lending Services**

Lending Services manage the circulation of Library material: issue, renewal, return, reservations, recalls, handling enguiries and defaulting borrowers.

All UCY members who obtain a library card have the right of borrowing material. External users not affiliated with the University of Cyprus may use the reading areas and open-access collections. They are given borrowing rights upon registration as library members and payment of an annual fee.

#### **Interlibrary Loan Service**

The service undertakes to provide users with books, articles, conference proceedings, etc., that are not available in the Library collection and are essential for research. For this purpose, the Library has established collaboration with various international networks including the Interlibrary Loan Network of Hellenic Academic Libraries, the Interlibrary Loan Network of the National Documentation Centre (NDC), SUBITO in Germany, the British Library, and INIST in France. The Library also assists other libraries in Cyprus and abroad to fulfill their users' information needs.

#### Library and Information Services for Blind and Visually impaired Users

In 2000 the Library installed an adaptive workstation for blind users, as well as a portable magnification device for visually impaired users. The workstation is equipped with software and devices that enable blind users to use the digital library without the mediation of sighted persons. Blind users are able to read and send e-mails, surf the internet, search the Library's OPAC and databases, read journal articles and electronic books. The refreshable Braille display, special magnification software and/or the transformation of the screen texts into acoustic format through the speech synthesizer facilitate reading.

The Library works in collaboration with the academic staff and the School for the Blind to digitally reproduce all necessary course material for visually impaired students.

In 2005 the Library joined the DAISY Book Consortium.

#### **Research Assistance**

#### Information Literacy

The Library holds educational seminars to familiarize users with its collections, resources and services. The seminars aim to help patrons develop and enhance their information literacy, which enables them to use the Library's resources more fully.

#### Ask a librarian

The service is accessible via the Library website and is available to the UCY academic community and external users.



#### AskLive

Patrons can use the AskLive Service to ask brief and specific reference questions related to the collections, resources and services of UCY Library. Replies are sent via real-time chat.

The service is available from Monday to Friday, 8:30-13:30, excluding holidays.

#### By appointment

Through the "Ask a Librarian by Appointment" Service, users can schedule a research consultation appointment for personal assistance in a variety of areas: to find appropriate print and electronic information on a particular topic; to become familiar with the UCY Library catalogue and collections; to learn how to use library resources and tools, including library catalogues, databases, electronic resources and RefWorks.

The service is available primarily to members of the UCY academic community and, as time permits, to external patrons.

#### **Citation Management Tools**

The Citation Management Tools are accessible through the Library website. They allow users to import citations directly from databases and websites to their own database, create and organize citations in a personal database, standardize citations (MLA, APA, Chicago Manual of Style, Turabian) and create bibliographies for papers, articles, projects, etc.

#### INFORMATION SYSTEMS SERVICE

The Information Systems Service (I.S.S.) provides computing and information technology services to the entire University.

The services are intended for general use, such as networking, printing, electronic mail, and office applications, as well as customized use, such as the developing of specific 'tailor'-made applications, depending on the specific needs that are presented at any given time.

The mission of the Information Systems Services is to continuously evaluate and introduce new technologies so that the University operates with the utmost efficiency (regarding both cost and operations). Additionally, the I.S.S. is responsible for maintaining in secure and good working order the current information technology services and systems that are required to carry out all academic and administrative activities.

#### **Security and Quality Control Office**

The aim of the Office is to provide solutions to security incidents and to offer proactive security analysis, development, education, and guidance relating to the University's information assets and information technology environment. It manages security systems to prevent malicious attacks, viruses, spam and unauthorised usage. The Office continuously monitors various security announcements and informs the University community of potential risks or forthcoming security-related problems.

#### **ISS Help Desk Office**

Helpdesk Office is the unique control point with the central services of ISS. It is a computerised Service Desk/Help Desk that functions within the Information Systems Services. The Service Desk Management system manages, tracks and monitors all service requests such as:

- Network, internet requests
- Security incidents
- System requests
- Application requests
- Operational incidents

#### Networks and Telecommunications Sector

The aim of the Sector is to provide advanced network services and to create, manage and maintain the network that interlinks all the buildings of the University. Objectives are to achieve the easy-wired and wireless secure connectivity of any user with the voice and data network, and to plan future upgrades of the network according to the functional requirements of users and technological developments.

The Sector also offers multimedia services concerning audio and video transfer like teleconference services, video streaming and digital information services. Another service is the audiovisual covering (video and photography) of the University events followed by the editing and post-production manipulation of the digital material.

#### **Systems Sector**

The Sector is responsible for the provision and support of the main information infrastructure of the University of Cyprus through the study, introduction and application of new technologies.

The major services offered to the students are:

- E-mail
- Issuance of usernames and passwords (for access to the laboratories, the e-mail, the Banner class registration system, the BlackBoard software, the VPN remote connection service and others)
- Unix services (telnet, ssh, ftp, compilers)

#### **Applications and e-University Sector**

The aim of the Sector is the implementation and application of the capabilities offered by new technologies and the internet.

#### **Application and e-University Office**

The e-University's objective is to facilitate the implementation of the University's strategic development plan.

The e-University provides access to information to students, academic staff, administrative Staff and



collaborators. It also aims to improve Student, Administrative and Financial Services and to promote knowledge sharing and collaboration in learning and research.

#### **Application Development Office**

The team is responsible for the development of applications which are linked with databases and for creating new websites based on the University's standards.

#### Educational Technology Sector e-Learning and Training Office

The Office supports the e-Learning system of the academic community of the University by installing and maintaining blackboard e-learning systems. These systems enhance the education of students by providing alternative means of communication not only between professors and students, but also among students.

The aim of the Office is the continuous education and training of the university community in the area of Information Technology services and tools. An example of the services of the Education Office is the "crash" course for using Microsoft Office offered to first-year students.

#### **Laboratories and Classrooms Support Office**

The Office also manages five computer laboratories, each equipped with 145 personal computers. Four of the computer laboratories are located at the Old Campus and one is at the Latsia branch.

The Office is responsible for the smooth operation of the computer equipment and the software installed at the computer laboratories. Beyond the maintenance of the systems, one of the primary objectives of the Office of Laboratories is the continuous and qualitative upgrading of the services to the university community. All users have a unified account for access to all general use laboratories as well as their e-mail and other services offered to them via the LDAP service.

#### **Domain Name Service (.cy)**

The University of Cyprus is the official registrar for all Internet Top Level Domain Names ending in .cy and manages the CY domain as a service to the Internet community in Cyprus.

#### INTERNATIONAL RELATIONS

The University is a member of the European University Association (EUA), the Network of Universities from the Capitals of Europe (UNICA), the International Association of Universities (IAU), the Association of Commonwealth Universities (ACU), the Association of Mediterranean Universities (UNIMED), the Santander Group (SG), the European Association of Erasmus Coordinators (EAEC), LEO-NET, the European Inter-University Centre for Human Rights and Democratization and others. The University has also established close contacts with numerous international organisations, including the European Commission (DG Research and DG Education and Culture), UNESCO, CEPES and the Council of Europe.

This international cooperation, at the institutional level, enhanced by the collaboration of the academic staff with universities and research institutions abroad, positions the University of Cyprus favourably in the international scholarly community. Notably, the former Rector of the University of Cyprus was elected as President of the UNICA Network for the period 2008-2011, and has been re-elected for the period 2011-2014. Moreover, a number of the University's academic and administrative staff actively participates in UNICA working groups to promote issues of interest to universities worldwide.

The University of Cyprus has signed Bilateral Agreements of Cooperation with around 110 universities in Europe, Australia, Middle East, Asia, USA, and Canada. These Agreements, which can be either inter-university or inter-departmental, authorise and facilitate student and academic staff exchanges, joint research projects, conferences and exchange of teaching and research material. Moreover, the creation in 2011 of the European Union of Small States Association (EU<sup>2</sup>S<sup>2</sup>), an initiative of the current Rector, is of great importance.

The University of Cyprus maintains close links with the Cypriots and Greeks of the Diaspora. Almost every year, a representative from the University addresses the NEPOMAK Conference Opening Ceremony. Furthermore, the University of Cyprus in the last five years offered, in cooperation with the Ministry of Education and Culture, the Educational Programme for Teachers of the Diaspora, where Greek and Cypriot teachers from the USA, the UK and Canada were hosted by the University for three weeks and participate in an intensive Greek language teaching course.

In addition, an intensive learning and cultural programme for the study of the Greek language is organised at the University of Cyprus, in the summer, which is intended for young Cypriots from Canada, the USA, Australia, the UK, South Africa and Greece. The Programme is co-organised with NEPOMAK, the Cyprus Youth Board, the School of Greek Language and the Reasearch and International Relations Service of the University of Cyprus, and is financed by the Republic of Cyprus.

The University of Cyprus has been working on attracting more international students. This effort has been successful, since in the last few years there has been an increase in the number of international students wishing to study at the University, due to the fact that more programmes of study are being offered in English.

#### PUBLICATIONS

In order to provide comprehensive information to the public, students and prospective students, and the international academic community, the University of Cyprus produces a wide range of publications. These include the annual Undergraduate and Postgraduate Prospectuses in Greek and English, publications on the research activity at the University, the University Annual Report, information leaflets and other material. The University magazine "Endeiktis" is published every six months and "Koinotita", a newsletter, is published every two months. "Apofoitos", the Alumni Relations University magazine, is issued every six months.

The majority of the publications are produced by the Publications Office of the Research and International Relations Service. However, a substantial number of research and information publications are produced by the faculties, departments, research units, services and other entities of the University.

The Cyprus University Publications form another aspect of the publishing activity of the University of Cyprus. The University of Cyprus in collaboration with Ellinika Grammata (Mesogios Press) of Greece has published 18 books in the areas of literature, science, art. As of May 2010, the Cyprus University Publications collaborate with Gutenberg Publications; the agreement aims at creating a joint publishing venture between the University of Cyprus and Gutenberg Publishing House and it is based on the parties' common understanding of publishing as an act of contribution to culture and tradition. The common goal of the collaborators is to produce and promote publications of high standard and of high quality in the fields of science, art, culture and social awareness.

In 2011 the first books of the publishing venture between the University of Cyprus and Gutenberg Publications were published covering an array of topics such as children's literature, poetry, philosophy and history.

#### LECTURES / CULTURAL ACTIVITIES

All departments of the University organize public lectures and other events focused on issues of scholarly, scientific and wider interest. In addition, the University organizes lectures, cultural events, exhibitions, concerts and other activities open to the general public. Our institution cooperates with many cultural organizations, local authorities, and others to promote culture, both for the benefit of the academic community and the students, as well as for society at large.

The University, in cooperation with the Municipality of Aglantzia, organizes a series of lectures open to the public, which is known as the "Free University" at Skali Aglantzias, whereas in cooperation with the Larnaca Municipality it operates the "Zenonion Free University". The University of Cyprus has also expanded the "Free University" scheme to cover Limassol (in cooperation with the Municipality of Famagusta), Pafos (the "lerokipeion Free University", in cooperation with the Municipality of Yeroskipou), Famagusta area ("Salamineio Free University") in collaboration with the Holly Metropolis of Constantias-Ammohostos, and the Cypriot Diaspora in London.

The University has already made a dynamic impact on the cultural and intellectual life of Cyprus. Its contribution will grow as the programmes of teaching and research are expanded.

#### **CULTURAL CENTRE**

Pursuing its commitment to promote culture, the University of Cyprus has established a Cultural Centre under the Faculty of Letters, which is located at Axiotheas Street, in the historic centre of Nicosia. Carefully restored by the Department of Antiquities, the Centre's building, an old mansion, serves as the home of the University's cultural activities.

The Centre houses the University of Cyprus Theatrical Workshop (THEPAK), which brings together students, but also members of the academic and administrative staff, alumni, friends of the arts, artists, etc. The Workshop strives to upgrade theatre activities within the University, and contributes to cultural life in Cyprus by staging Medieval and Renaissance works focusing on peripheral Hellenism.

The Axiotheas Mansion is also the venue for the Cultural Festival of the University of Cyprus, an international event which is organised twice a year and focuses on Mediterranean culture, dance and music. With its rich and varied programme, which includes concerts, theatre and dance performances, exhibitions and lectures on different subjects, the University's Cultural Centre has earned a respectable place on the cultural map of Cyprus.



# **POSTGRADUATE STUDIES**



# **Postgraduate Studies**

The University of Cyprus began accepting postgraduate students in the academic year 1997-98. All academic departments of the University offer postgraduate programmes of study at the Master (M.A., M.Sc. and M.Eng.) and Doctor of Philosophy (Ph.D.) level in a wide range of subjects.



#### STUDIES

#### **Attendance Regulations**

The postgraduate programmes of each department are supervised by a three-member Postgraduate Programmes Coordinator. The Coordinator may be the chairperson of the department or a member of the academic staff appointed by the chairperson. The other members of the committee are appointed by the Departmental Board. The Committee is appointed for a two-year term.

For every student in the Postgraduate Programme, the department appoints an Academic Supervisor, whereas at the research stage of the Ph.D. a Research Supervisor is appointed. Candidate students select a member of the academic staff to act as their Research Supervisor. The student's choice must be approved by the Postgraduate Programmes Coordinator. The Research Supervisor guides the students in their research and provides the necessary help and advice.

The programmes of study of the University of Cyprus are based on the European Credit Transfer System (ECTS). An ECTS normally corresponds to a 25-30 hours workload per semester. Full-time status requires a courseload of 18 ECTS per semester. Students carrying fewer ECTS are considered part-time.

Postgraduate programmes are taught in one of the official languages of the University of Cyprus (Greek and Turkish). However, a programme may also be offered in an international language, provided it is already offered in one of the two official languages (the following departments are exempted from this rule: Department of English Studies, Department of French Studies and Modern Languages and Department of Turkish and Middle Eastern Studies).

Postgraduate studies are subject to the Postgraduate Studies Regulations. For more information, students must contact the Graduate School (tel. 22894044) or visit the website <u>www.ucy.ac.cy</u>.

# Requirements for M.A., M.Sc. and M.Eng. Degrees

- Attendance for a minimum of three (3) semesters. The maximum period of study is eight (8) academic semesters.
- Successful completion of 90-120 ECTS at the postgraduate level (75 ECTS for professional programmes or more than 120 ECTS if the programme includes practical exercise), in accordance with the provisions of the programme of studies of the relevant department.
- Other criteria set by the department, which may include the submission of a dissertation.
- If a dissertation is rejected the student is allowed to resubmit the dissertation once more. Each Department is responsible for defining resubmission procedures.

#### **Requirements for a Ph.D. Degree**

- Attendance for a minimum of six (6) semesters. The maximum period of study is 16 academic semesters.
- Successful completion of 240 ECTS (60 ECTS at the postgraduate level, in accordance with the provisions of the relevant programme of studies of the department: holders of a master's or equivalent degree may be partially or fully exempted from this requirement. The research part of the programme comprises 120 ECTS; the remaining ECTS are acquired through the comprehensive examination, the presentation of the dissertation proposal, the writing of the dissertation, etc.).
- Success in a comprehensive examination in the sixth semester of studies at the latest.
- Presentation of a dissertation proposal before a threemember committee. The committee is proposed by the Research Advisor and the Postgraduate Programmes Committee of the Department. It is chaired by the Research Advisor and appointed by the Council of the Department.
- Submission of an original dissertation constituting an important contribution to the particular discipline.
- Defence of the dissertation before a five-member examining committee. The committee is appointed by the Council of the Department and is composed of

three members of the departmental academic staff, one of whom is, in all cases, the student's Research Supervisor; one member from another university or research centre and a member from another department of the University in a related discipline or from another university or research centre.

- The Chair of the Examining Committee is a member of the academic staff of the department, but not the Research Supervisor.
- If the Examining Committee cannot recommend awarding a degree, the Ph.D. candidate may be allowed to resubmit the dissertation, after due modifications have been made in accordance with the committee's requirements, and repeat the entire process of defence once more.
- The Ph.D. candidate may not submit a dissertation until he has completed six semesters from the day of admission to the postgraduate programme and after the successful completion of the comprehensive examination and the required credit units.

#### **Application Requirements**

Application forms should be submitted to the Postgraduate Studies Coordinator of the relevant department by the 30th of March of each year for entry in the fall semester and by the 31st of October for entry in the spring semester. Applicants must have a university degree, awarded by an accredited institution in the country where it operates, or a degree evaluated as equivalent to a university degree by the Cyprus Council for the Recognition of Higher Education Qualifications (KYSATS). Individuals who will be awarded a University degree or Graduation certificate fulfilling the criteria of the application requirements by the end of the week that precedes the registration week will also be eligible to submit an application form.

Applications should include the following:

- 1. Application form.
- 2. Curriculum vitae.
- 3. Copies of university degrees or a statement of expected graduation in the month preceding enrolment in the postgraduate programme.
- 4. A transcript.

- 5. A short statement (maximum two pages) of the student's research goals and interests.
- 6. Names and addresses of professors of higher educational institutions. Applicants must request that letters of recommendation be sent directly to the Postgraduate Studies Coordinator of the relevant department.

The department may ask for additional confidential information. The criteria for assessment of candidates are the following: academic background in the appropriate discipline and grade in related bachelor's degrees; a minimum of two or more letters of recommendation, depending on departmental regulations; interview and/or written examination (if stipulated in the department's internal regulations).

#### Fees

The fees for postgraduate studies are as follows:

#### a. Master's Degree

- Master Programmes: €5.125 per programme
- Master in Business Administration (MBA): €10.250

#### **b.** Doctoral Degree

- Ph.D. students, holders of master degrees: Total fees €4.000
- Ph.D. students, without a master degree: Total fees €6.500

Each year of study beyond the six years, with a maximum duration of eight years (16 semesters) corresponds to tuition fees of  $\in$  1.250 per year. Maximum tuition fees for a Ph.D. degree are  $\in$  9.000.

If students wish to suspend their studies, they must follow the relevant procedure of the Postgraduate Studies Regulations. For more information, students must contact the Graduate School (tel. 22894044) or visit the website <u>www.ucy.ac.cy</u>.

Fees must be paid at the Accounts Office prior to registration. The deposit of  $\in$ 500 which is paid in advance, is not refundable.

#### **Postgraduate Student Funding**

Apart from scholarships offered by the State, the University of Cyprus may subsidize a postgraduate

student who offers to work as an assistant in covering the needs of his/her department or other departments. Assistantships may involve assisting in teaching, tutorials, help with assignments, lab supervision, grading, etc. They do not apply to the research activity of the student nor to the research activity of the academic and research staff. Monthly earnings can amount to  $\in$ 342 or  $\in$ 683 for a maximum period of ten months.

#### **STUDENT SERVICES**

#### Personal Guidance and Counselling Services

The University provides counselling services for personal and/or academic issues that may interfere with the students' academic career. Through counselling and psychotherapy, the Counselling Office assists students with a range of issues like stress and anxiety, time management, relationship difficulties, confusion, loneliness, etc. The services are free of charge, shortterm and confidential. Throughout the academic year, there are a number of presentations and workshops offered based on the students' interests. The primary goal of this service is to assist students in developing and maximising their educational experience.

#### **Information Office**

The Information Office provides information on all student issues including studies, housing, welfare, counselling, career, sports, etc. The information is provided personally, by mail, phone or email (fm@ucy.ac.cy).

The Office provides students with various information handouts and application forms regarding financial aid, exemption from military obligations, transcripts, certificates, change of major degree, housing, etc.

#### **Careers Office**

The Careers Office aims to be the link between the University of Cyprus students with the labour market and their postgraduate studies.

The connection with the labour market is mainly realised through the organization of various events like the annual Career Day, company presentations and recruiting days, public discussions on current issues, an internships programme and much more. Furthermore, the Careers Office publishes a newsletter called Career and Studies that includes a section with vacancies for both students and graduates of the University of Cyprus. Graduates can also send their C.V. which will be forwarded to interested employers.

Moreover, the Careers Office organizes throughout the year various seminars and workshops on relevant topics like "Preparing the CV and the accompanying letter", "Personal Statement preparation", "Improving communication skills", etc.

Last but not least, the Careers Office offers information on postgraduate studies abroad, scholarships and funding sources. It also demonstrates ways of online searching via certain websites, informs students for contact details of universities worldwide and distributes written material that helps students make an informative decision.

#### **Student Accommodation and Catering**

The University of Cyprus began operating a number of student dormitories (208 bedspaces) on the new campus in September 2003. For information regarding the cost and criteria for campus accommodation/other details, students may contact the Housing Office of the University.

Due to the limited number of bedspaces available on campus, the Housing Office manages a number of student apartments in the private sector and maintains a list of flats and houses for rent. This list is available at the beginning of each academic year. The rent for a one-bedroom flat is approximately  $\notin$ 400– $\notin$ 500 per month,



for a two-bedroom flat €480-€600 per month, and for a three-bedroom flat €600-€770 per month. The University has a restaurant and a canteen that operate on commercial terms but with controlled prices. There is also a restaurant at the Latsia Annex, and there are many small private restaurants located near the University.

Living expenses are estimated at between €700–€1.000 per month, including rent.

#### **Employment**

The University has a limited number of positions available for student employment. The Careers Office informs students of temporary positions both within and outside the University. Graduate assistantships are sometimes available, depending on individual department needs.

#### **Financial Aid**

The Social Support Office of the Academic Affairs and Student Welfare Service provides guidance on financial problems. Students with very serious financial problems may be subsidised by the Student Welfare Fund. The Fund is supported financially by the University of Cyprus as well as external contributions and donations.

#### **Services for Students with Special Needs**

Students with special needs are treated as equals to all other students, whilst every effort is made to offer practical solutions to their specific problems, such as access to University facilities, or assistance on academic issues.

#### Health

All Cypriot students of the University of Cyprus are given free medical and pharmaceutical care by all public hospitals on presentation of their student identity card. All students from E.U. member states are given free medical and pharmaceutical care by all public hospitals on presentation of their Eurocard. The University Health Centre, operating at the University central building, offers first aid, provides advice on health issues, and also organizes prevention campaigns, blood-donation drives and refers students to public hospitals.

#### **STUDENT LIFE**

#### **Student Union**

The Student Union of the University of Cyprus was founded in 1993. Its highest body is the General Assembly and its executive body is the Administrative Council, which has 21 members elected annually by the members. Every student becomes a member of the Student Union upon registration. The Student Union is represented in all Governing Bodies (Council, Senate, Departmental and Faculty Boards).

It has a record of rich and varied activity, guided by the struggle for reunification of Cyprus and its people, peace and democracy, student problems and sociocultural needs. Activities are directed to both its members and society at large.

#### **Student Clubs**

There are 25 student clubs at the University of Cyprus, involved in educational, cultural, artistic and entertainment activities. Students wishing to form a club must draft a statute, which must then be approved by the University authorities. The "Club Evening" is a yearly event organised by the clubs' coordination committee at which students have the opportunity to learn about the activities of the various clubs from their representatives. In turn, they can register in the clubs of their preference.



The Student Life Office offers support in the formation and functioning of the clubs. There are also periodic workshops related to administrative and communication matters which aim to develop leadership abilities and improve communication and administrative skills.

#### **List of Clubs**

- Archaeological Club
- Art
- Cyprus Association for Special Education (C.A.I.E.)
- Dance
- Environmental and Animal Lovers
- European Club
- Experimental Workshop of Creative Expression (E.W.C.E.)
- Film
- Greek
- IEEE
- Journalists
- Karate
- Literature
- Music
- Orthodox and Hellenic Tradition
- Photoclub
- Philosophy
- Political Studies
- Psychology
- Sailing
- Scouting and Survival
- Sociology and Political Science
- "Terpsichorian" Music Group
- Theatre
- Volunteer Student

#### **Sports**

To encourage the University community (students and personnel) to participate in sports activities, a wide variety of activities is offered and the opening hours of the sports facilities have been extended from 07:30-22:00.

The Sports Centre recognizes that sports is a broad term, and that different people want and expect different things from a sports programme. In response to this, the sports programme has been divided into several broad categories, as follows:

#### **Recreational Sports**

This group of activities is for people who want to improve their overall level of physical fitness. The aim of the University is to make sports an inseparable part of university life.

#### **Internal Championships**

Internal championships are open to the entire University community (undergraduate and postgraduate students, academic and administrative personnel). Emphasis is placed on participation as much as winning. They offer a way to improve overall physical fitness, they develop skills and techniques in a variety of sports, and they are fun.

International regulations apply to all matches / competitions. The University appends its own, stricter regulations related to discipline, since the Sports Centre respects and enforces Olympic principles.

All games are moderated by referees from official sports associations in Cyprus. The Sports Centre is fully responsible for the organization and supervision of all matches/competitions.

The Sports Centre expects all athletes to compete in earnest and show good sportsmanship. This will ensure the positive growth of sports at the University.



#### **Competitive Sports**

This programme is designed for those who take sports more seriously and for those who wish to compete as members of the University teams. Experienced coaches oversee the training of these teams. University teams participate in the following competitions:

- Cyprus Association of University Sports
   Championships
- International Tournaments in Cyprus and abroad
- Pan-Hellenic Championships (EATE)
- European Championships (EUSA)
- World Championships (FISU)

#### **Sports and the Community**

Sports has very rightly been called the greatest social phenomenon of the 20th century. It is in this spirit that the Sports Centre hopes to make its contribution to Cypriot society at every opportunity available.

#### **Student Sports Clubs**

The University of Cyprus will offer, from the beginning of this academic year, the following basic Student Sports Clubs:

- 1. Archery
- 2. Fencing
- 3. Futsal
- 4. Squash
- 5. Swimming
- 6. Table Tennis
- 7. Trampoline

There are additional programmes, which operate on a seasonal base:

- 1. Rowing
- 2. Scuba Diving
- 3. Skiing
- 4. Water Ski
- 5. Windsurfing
- 6. Any other sport which can serve the philosophy of the program.

The above programmes are only open to students; the University Community is not eligible to participate.

#### **Sports Elective Courses**

The University of Cyprus has, in the last two years, added the following sports elective courses to its educational programme:

- 1. Aerobics
- 2. Badminton
- 3. Basketball
- 4. Football
- 5. Handball
- 6. Judo
- 7. Lifelong Physical Activity
- 8. Squash
- 9. Tennis
- 10. Volleyball

#### **Radio Station of the University of Cyprus**

UCY Voice, the radio station of the University of Cyprus, was founded in order to promote the work of the Institution, to provide information to the members of the university community and to give "voice" to the students. It broadcasts on the frequency 95,2 fm and from the website at <u>www.ucy.ac.cy/ucyvoice</u>.

All members of the university community – students, professors, alumni and administrative staff – can become radio producers at UCY Voice. Everyone is offered the opportunity to learn the techniques of radio production and produce their own shows.



Studios are fully equipped with modern and professional sound equipment. UCY Voice broadcasts on a 24hour basis and its programmes cover the spectrum of information and entertainment with informative, musical, cultural, sports and other programmes.

The University's aim is the development of students' creativity, the cultivation of free speech and thought and the establishment of UCY Voice as a means of free expression.

#### **STUDENT EXCHANGES**

# Life Long Learning Programme - LLP, 2007-2013

#### **ERASMUS Studies - ERASMUS Placements**

The University of Cyprus has been participating in ERASMUS since the academic year 1998/1999. The goal of ERASMUS is the promotion of the European dimension in education and the acquaintance of students, academic and administrative staff with the different cultures that compose the European Union, within a framework of a number of activities, the most important of which is the exchange of students and staff (ERASMUS Studies and Placements, ERASMUS Teaching Assignments, ERASMUS Staff Training).

An important aim of these Actions is to create opportunities for exchanges and to establish a European consciousness amongst the Europeans and especially the young people. One of the ways to achieve this goal is by learning the European languages, particularly those which are less widely spoken, such as Danish, Finnish, Flemish, Dutch, Italian, Portuguese and Swedish, and establishing personal contact with each others' cultures and civilisations especially among the younger generation. Exchanges aim to promote the above objectives and simultaneously give the students the opportunity to fulfil part of their degree in other European institutions (for one or two semesters of the same academic year).

Exchanges depend upon the mutual recognition of the educational study programmes by the host and sending universities. This is achieved through the implementation of the rules set by the European Credit Transfer and Accumulation System (ECTS), which are

based on transparency of information and methodology and on mutual trust and recognition of the programmes of study involved. The ECTS programme of studies comprises 60 ECTS per academic year, 30 ECTS per semester.

The Diploma Supplement (DS) is granted free of charge to all graduates of the University of Cyprus. The DS, which is issued by the hosting university, describes the content and level of studies undertaken, but does not substitute for the official study title or the official transcript of courses taken / ECTS earned.

Student training placements in European companies or organizations may have a duration between 3 and 12 months and recognition may be provided by the home institutions.

For further information on matters concerning the ERASMUS Studies and Placements actions, please contact the ERASMUS Institutional Coordinator, Dr Gregory Makrides, Director of the Research and International Relations Service (e-mail: makrides.g@ucy.ac.cy, tel. +357 22894288).

#### Leonardo da Vinci

The Leonardo da Vinci Programme is an EU programme that promotes a vocational training policy in Europe and offers young university graduates the opportunity to be placed in companies or organizations in EU countries for 2 weeks to 6 months.

For all types of mobility, support will be provided for programmes that ensure the quality of the placements. The placement programmes must, where appropriate, address the following elements:

- Linguistic and cultural preparation
- Objectives, content and duration of the stay abroad
- Pedagogical organisation, tutoring and mentoring
- Validation of the skills acquired

In addition, the individuals who are accepted will, upon request and where applicable, be awarded the "Europass Mobility" document, which will be issued by the relevant implementing bodies, following the principles and criteria set out by the appropriate bodies of the European Union.

#### **Other Student Exchanges**

Within the framework of Bilateral Agreements of Cooperation (outside ERASMUS and Leonardo da Vinci), signed between the University of Cyprus and other institutions, students have the opportunity to study abroad at collaborating universities.

For more information on the Exchange Programmes and the ECTS system, please contact the Mobility Support Office of the Research and International Relations Service.

#### **SCHOOL OF MODERN GREEK**

The School of Modern Greek of the University of Cyprus was founded in 1998; its mission is to teach the Greek language to non-native speakers, nationals and foreigners, as well as to those who wish to perfect their knowledge of Greek. The School offers intensive and non-intensive courses at five different levels: a two-semester (26-week) course, with classes running twice a week from September through April, and comprises of 156 contact hours; an intensive one-semester (13-week) course, which is held five times a week, from September through December and January through April/May, and comprises of 195 contact hours; and an intensive 4-week summer course, offered daily from the last week of July to the third week of August.

In addition, the School offers intensive short-term courses tailored to specific needs (e.g. for descendants of Cypriot emigrants) or externally funded special courses (e.g. for asylum seekers). Upon successful completion of their chosen course, which entails regular class attendance and completion of an oral and a written exam, students are awarded a certificate. Students enrolled in the School of Modern Greek are entitled to use the Library, the Computer Centre and the sports facilities of the University of Cyprus.

Members of the University of Cyprus (academic and administrative staff, non-Greek speaking students and exchange students) can attend, free of charge, any of the various courses (the intensive summer course and/or the one semester intensive course/one year nonintensive course).

The School of Modern Greek is located at 75, Kallipoleos Avenue, Nicosia.





# FACULTIES AND DEPARTMENTS

The University consists of seven faculties:

- the Faculty of Humanities with three departments and the Language Centre
- the Faculty of Pure and Applied Sciences with five departments
- the Faculty of Social Sciences and Education with four departments
- the Faculty of Economics and Management with two departments, the Economics Research Centre and the Centre for Banking and Financial Research
- the Faculty of Engineering with four departments
- the Faculty of Letters with three departments and the Archaeological Research Unit
- the Graduate School

The table overleaf lists the faculties, the departments and the degrees they offer.

On pages 30-289 there are detailed descriptions of the postgraduate programmes offered by the departments and a brief description of the research interests of the academic staff.

FACULTY	DEPARTMENT	DEGREE
HUMANITIES	ENGLISH STUDIES	<ul> <li>English Literature and Comparative Cultural Studies***</li> <li>Teaching English as a Foreign Language (TEFL)*</li> <li>Theoretical and Applied Linguistics*</li> <li>Lingustics**</li> <li>Translation Studies**</li> </ul>
	FRENCH STUDIES AND MODERN LANGUAGES	French Studies***
	TURKISH AND MIDDLE EASTERN STUDIES	• Turkish Studies***
PURE AND APPLIED SCIENCES	BIOLOGICAL SCIENCES	Molecular Biology***     Experimental Molecular Biology*     Medical Genetics***
	CHEMISTRY	Chemistry***     Food Chemistry*
	COMPUTER SCIENCE	Advanced Information Technologies (professional)*     Computer Science***     Internet Computing*     Intelligent Systems*     Computer Games and Interactive Media* (in collaboration with the Dep. of Multimedia and Graphic Arts of the Cyprus Univerdity of Technology)
	MATHEMATICS AND STATISTICS	<ul> <li>Applied Statistics*</li> <li>Applied Mathematics*</li> <li>Pure Mathematics*</li> <li>Statistics**</li> <li>Mathematics**</li> <li>Mathematics*</li> <li>Mathematics (University of Poitiers - France)*</li> </ul>
	PHYSICS	Physics***     Foundations of Physics*
SOCIAL SCIENCES AND EDUCATION	EDUCATION	Curriculum Development and Instruction***     Didactics and Methodology of Mathematics*     Educational Administration and Evaluation***     Special and Inclusive Education***     Language Pedagogy***     Learning in Natural Sciences***     Mathematics Education***     Pedagogical Sciences***     Gender Studies*** (Interdepartmental Programme)     Language and Education**
	LAW	<ul> <li>International Law and European Law*</li> <li>Private International and Comparative Private Law** (The postgraduate programmes are subject to approval by the relevant University bodies)</li> </ul>
	PSYCHOLOGY	<ul> <li>Clinical Psychology**</li> <li>Psychology**</li> <li>Applied Programme in School Psychology*</li> <li>Cognitive Educational Psychology*</li> <li>Social Developmental Psychology*</li> </ul>
	SOCIAL AND POLITICAL SCIENCES	<ul> <li>Social and Political Theory*</li> <li>Sociology**</li> <li>Political Science**</li> <li>Political Science (Intrernational Relations or European Politics)*</li> <li>European Master in Human Rights and Democratisation*</li> </ul>

FACULTY	DEPARTMENT	DEGREE
ECONOMICS AND MANAGEMENT	ECONOMICS	Economic Analysis* (in greek and english)     Economics***     Monetary and Financial Economics*
	PUBLIC AND BUSINESS ADMINISTRATION	<ul> <li>Accounting**</li> <li>Business Administration (MBA)* (in greek and english)</li> <li>Finance***</li> <li>Management Science**</li> </ul>
		Financial Economics (in english)*     (interdepartmental programme of PBA - ECO)
ENGINEERING	ARCHITECTURE	• Architecture**
	CIVIL AND ENVIRONMENTAL ENGINEERING	• Civil Engineering*** • Environmental Engineering***
	ELECTRICAL AND COMPUTER ENGINEERING	• Electrical Engineering*** • Computer Engineering***
	MECHANICAL AND MANUFACTURING ENGINEERING	Mechanical and Manufacturing Engineering***     Materials Science and Engineering***
		Energy Technologies and Sustainable Design*     (interdepartmental programme of the Faculty of Engineering)
LETTERS	BYZANTINE AND MODERN GREEK STUDIES	• Modern Greek Studies***
	CLASSICS AND PHILOSOPHY	Classical Studies***     European Master in Classical Studies*
	HISTORY AND ARCHAEOLOGY	Mediterranean Archaeology: from Prehistory to late Antiquity***     Modern and Contemporary History***     Traditional Culture (16th-20th century)**     Cultural Heritage Management**
		Byzantine Studies***     (Interdepartmental Programme of BMG-HI5)

#### FACULTY OF HUMANITIES

Dean: Andreas Papapavlou Deputy Dean: Thomas Sinclair

**ENGLISH STUDIES** FRENCH STUDIES AND MODERN LANGUAGES TURKISH AND MIDDLE EASTERN STUDIES Martin Strohmeier

#### Kleanthes K. Grohmann May Chehab

#### FACULTY OF PURE AND APPLIED SCIENCES

Dean: Efstathios Paparoditis Deputy Dean: Angelos Efstathiou

#### **CHAIRPERSONS**

BIOLOGICAL SCIENCES Andreas Constantinou CHEMISTRY Athanasios Nicolaides COMPUTER SCIENCE Marios Dikaiakos MATHEMATICS AND STATISTICS **Theofanis Sapatinas** PHYSICS Andreas Othonos

#### FACULTY OF SOCIAL SCIENCES AND EDUCATION

Dean: Stelios N. Georgiou Deputy Dean: Helen Phtiaka

EDUCATION SOCIAL AND POLITICAL SCIENCES PSYCHOLOGY LAW

Mary Ioannidou-Koutselini Maria Hadjipavlou Fofi Constantinidou Andreas Kapardis

#### **GRADUATE SCHOOL**

Dean: Charis R. Theocharis Deputy Dean: Constantinos Constantinou

#### FACULTY OF ECONOMICS AND MANAGEMENT

Dean: Haridimos Tsoukas Deputy Dean: Theofanis Mamuneas

CHAIRPERSONS

ECONOMICS Michael Michael

PUBLIC AND BUSINESS ADMINISTRATION

Hercules Vladimirou

#### FACULTY OF ENGINEERING

Dean: Panos Papanastasiou Deputy Dean: Christos Panayiotou

ARCHITECTURE

CIVIL AND ENVIRONMENTAL ENGINEERING ELECTRICAL AND COMPUTER ENGINEERING MECHANICAL AND MANUFACTURING ENGINEERING **Marios Phocas** (temporary) Symeon Christodoulou Stavros lezekiel Stavros Kassinos

#### **FACULTY OF LETTERS**

Dean: George Kazamias Deputy Dean: Alexander Beihammer

#### **CHAIRPERSONS**

BYZANTINE AND MODERN GRE	EK STUDIES Mariann	a Katsoyiannou
CLASSICS AND P	HILOSOPHY loannis	Taifacos
HISTORY AND ARC	HAEOLOGY Chris Sc	habel

## FACULTY OF HUMANITIES

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Department of English Studies (30)

Department of French Studies and Modern Languages (34)

Department of Turkish and Middle Eastern Studies (42)

# **English Studies**

The Department of English Studies is dedicated to the promotion of research and knowledge in the areas of English language and culture. It offers an undergraduate degree in English with concentrations in Linguistics, Literature and Translation Studies.

The Department also offers the following Master's degrees:

- English Literature and Comparative Cultural Studies
- Teaching English as a Foreign Language
- Theoretical and Applied Linguistics

The Department offers Ph.D. programmes in subjects related to all research areas of its academic faculty.



#### **Research in the Department**

The Department is involved in research into anglophone and comparative literature, translation, linguistics and cultural studies. More specifically, research activities of faculty members in the area of literature include theatre studies (especially comparative European theatre and melodrama), critical and cultural theory, early modern literature, 18th- and 19th-century prose, Romanticism. postcolonial and postmodern literature, continental philosophy, psychoanalysis, feminist and American studies and literary translation in a comparative literature context. Faculty members in the area of linguistics undertake various research projects in theoretical and applied linguistics, including theoretical syntax, comparative syntax, the syntax-semantics and syntax-morphology interfaces, language contact between English and Greek in the sociolinguistic frame of Cyprus (diglossia, lexical borrowing, etc.), as well as the teaching of English in primary schools and the development of language tests and their educational and social impact. Faculty members in the area of translation studies undertake research in literary translation (including drama), intercultural studies, cultural translation, translation theory, translation methodology, translation didactics, text linguistics, and interpreting studies.

All faculty members participate in the Cyprus Society for the Study of English (CYSSE), while faculty members in linguistics and translation studies are also responsible for the recent foundation of the Cyprus Linguistics Society (CyLing).

#### **Research Collaborations**

The Department, in collaboration with other universities in Cyprus and/or abroad, is also involved in the following research programmes:

- a) research project on specific language impairment, "CySLI" (RPF, 2011-13)
- b) internal research project on language acquisition, "Gen-CHILD" (UCY, 2010-12)
- c) COST Action ISO805 on multilingual language impairment, "BiSLI" (ESF, 2009-13)
- d) internal research project "ARGUE" (UCY, 2010-12)

- e) EU Lifelong Learning Programme "IVY Interpreting in Virtual Reality" (EU, 2011-13)
- f) Sectoral Qualifications Framework for the Humanities and the Arts, "SQF HUMART" (EU, 2010-12)
- g) Literature Across Frontiers, "LAF" (EU, 2008-13)

#### **Postgraduate Studies**

The Department of English Studies offers postgraduate programmes at M.A and Ph.D. level. The normal course of study for the M.A. is four semesters: three semesters of coursework, followed by one semester for writing the M.A. dissertation. Students are allowed up to eight semesters to complete the degree, if necessary. Doctoral candidates must complete at least six and no more than sixteen semesters of study.

In the spring semester of each academic year, the university announces which postgraduate programmes will be offered in the following year. The announcement can be found at:

http://ucy.ac.cy/goto/acafsw/en-US/NewEventsAnnouncements2.aspx

#### **Admission Requirements**

- (a) Postgraduate programmes at Master's level: All applicants for entrance in the M.A. programmes offered by the Department must hold a first class or upper second class degree (or equivalent) in a subject related to their proposed field of study. All candidates must be competent and fluent in English and, depending on the nature of the programme, in other relevant languages. Although candidates need not have completed their degree at the time of application, they must have received it before they commence the postgraduate programmes.
- (b) Postgraduate programmes at Ph.D. level: Generally, applicants must hold a Master degree (or equivalent), awarded by a recognized university, in a subject related to their proposed field of study; alternatively, they must show evidence of their ability to conduct research in the humanities.

#### **Application and Selection Procedures**

For more information on application requirements and selection procedures, see Admission and Attendance Regulations – Application Procedures on page 16, or

consult the Graduate School (tel. 22894021/44). See also the relevant link:

http://ucy.ac.cy/goto/acafsw/en-US/PostgraduateOffice.aspx

# M.A. IN ENGLISH LITERATURE AND COMPARATIVE CULTURAL STUDIES

The Master's programme in English Literature and Comparative Cultural Studies is designed for students who wish to undertake research in literature, with particular emphasis on cross-cultural, comparative and interdisciplinary perspectives. Students may explore cross-cultural dimensions within English Studies, or anglophone literature in relation to literatures in other languages. Intergeneric approaches to literature are also encouraged. Courses examine recent developments in cultural analysis in relation to literary texts, drawing from disciplines such as psychology, anthropology, sociology, history and philosophy. The programme is aimed primarily at students who wish to undertake research in:

- a) Anglophone and Comparative Literature
- b) Cultural Studies
- c) Literary Theory

#### List of Courses

- ENG 700 Aesthetics and Literature: from Romanticism to Postmodernism
- ENG 705 The Animal in Literature and Philosophy
- ENG 707 The Problem of Subjectivity in Postmodern Theory and Literature
- ENG 709 Imagined Worlds: The Nineteenth Century
- ENG 710 Comparative Studies in World Literature and Culture
- ENG 711 Literature, Society and Revolution in the Early Modern Period

The Department participates in the interdisciplinary, transnational Programme on Cosmopolitanism and Diversity, funded by the LLP Erasmus of the European Committee and co-ordinated by the Centre for the Humanities at Utrecht University.

# M.A. IN TEACHING ENGLISH AS A FOREIGN LANGUAGE (TEFL)

The programme is primarily designed for those interested in TEFL as an academic field and has the following main objectives:

- to offer students a solid foundation and deepen their knowledge in the main areas of TEFL, from both a theoretical and a practical point of view;
- to acquaint students with new areas in the field (such as computer-assisted language learning, alternative assessment, English as a lingua franca;
- to engage students in research in the field of TELF and consequently encourage them to further their studies.

The programme is divided into two components: the taught component covers the main areas of TEFL and familiarizes students with research methodology; the thesis component gives students the opportunity to undertake research in a specialized area of interest.

#### Indicative List of Courses

ENG 741 Trends in Applied Linguistics ENG 751 Language Teaching and Learning ENG 753 Language Testing and Evaluation ENG 754 Materials Development and Course Design ENG 755 Spoken Language Pedagogy ENG 756 Technology-Assisted Language Learning

#### M.A. IN THEORETICAL AND APPLIED LINGUISTICS (TAAL)

The programme is primarily designed for those interested in the scientific investigation of language and has the following main objectives:

- to offer students a solid foundation and deepen their knowledge in the main areas of English grammar and the structure of language;
- to acquaint students with different areas in the field (such as syntax, semantics, phonology, applied linguistics, etc.);
- to provide guidelines for students conducting research in the field of linguistics, and consequently encourage them to further their studies.

The programme is divided into two components: the taught component covers the main areas of linguistics and familiarizes students with research methodology;

the thesis component gives students the opportunity to undertake research in a specialized area of interest.

#### Indicative List of Courses

ENG 741 Trends in Applied Linguistics ENG 743 Principles of Linguistic Analysis I ENG 748 Principles of Linguistic Analysis II ENG 749 First and Second Language Acquisition ENG 750 Topics in Linguistics

#### **Research Interests of the Academic Staff**

#### Stella Achilleos

Lecturer

Her research interests concentrate on the literature and the social and cultural history of the early modern period. Her research focuses particularly on the discourses and practices of friendship in early modern literature; literature, community and sociability (with special emphasis on seventeenth-century poetry and sociability); and the literature of the English Revolution.

### Antonis Balasopoulos Associate Professor

The literary construction of racial, national and imperial identities (with emphasis on the American novel of the 18th and 19th centuries), the cultural production of space (with a special emphasis on the production of utopian spaces in literary, political and architectural discourse), the politics of representation in the visual arts, and critical theory (especially materialist theories of cultural production, genre theory and post-colonial theory).

#### Karen Emmerich

#### Lecturer

Her primary research interests include literary translation as a theoretical problem as well as practical endeavor; the role of translation in canon formation; and the relationship of translation to other forms of "rewriting," including literary criticism, edition-making, and anthologization. She is particularly interested in the visual and material aspects of textual production. She also specializes in modern Greek literature, particularly poetry, and has a deep interest in 20thcentury experimental American poetry. Her translation practice centers on modern and contemporary Greek poetry and prose.

### Georgios Floros Assistant Professor

His research interests focus on theoretical and methodological aspects of translation and interpreting, text linguistics and discourse analysis. Specifically, his main research areas include culture and translation, translation process and methodology, translation didactics, interpreting methodology and didactic aspects of interpreting. As regards the text linguistic perspective, he is interested in textual structure, cohesion and coherence as well as in the importance of these features for translation and interpreting.

#### • Kleanthes K. Grohmann Associate Professor

His research interests lie in the field of biolinguistics, in particular theoretical syntax, morphology, semantics, and language acquisition. He is concerned with syntactic theory (in particular the Minimalist Program and the Principles & Parameters Theory), synchronic and diachronic study of grammar (especially history of English), and theoretical concerns in psycho- and neurolinguistics (incl. L1 and L2 acquisition as well as language disorders). The language families he is currently most interested in are Germanic, Greek, Romance, and Slavic.

#### Maria Margaroni

#### Associate Professor

History and theory of literary criticism, feminist literary theory, contemporary English literature. In particular, she is interested in issues arising in the context of post-structuralist literary theory and post-war continental philosophy (with an emphasis on the work of Jacques Derrida, Emmanuel Levinas, Michel Foucault, Gilles Deleuze, and Giorgio Agamben, among others). In the area of feminist studies, her interests focus on post-structuralist and psychoanalytic theories (with an emphasis on the work of Julia Kristeva, Luce Irigaray, Judith Butler, Hélène Cixous) and contemporary women writers (such as Angela Carter and Jeanette Winterson, among others). Secondary interests in the following areas: modern and postmodern drama, cinema, working-class literature.

### Anastasia Nikolopoulou Associate Professor

History and theory of European and American theatre, gothic and romantic literature, melodrama, the Victorian novel, philosophical hermeneutics, popular culture.

#### • E. Phoevos Panagiotidis Assistant Professor

Assistant Professor

His research interests comprise general linguistics, language typology and change, morphology, syntax and their acquisition. More precisely, his research concentrates on the syntax and acquisition of nominal phrases and syntactic edges and on issues of grammatical category from a syntactic, morphological and semantic point of view.

### Andreas N. Papapavlou Professor

Speech perception, language acquisition, the acquisition of a dialect as a mother tongue, factors affecting second language acquisition, bilingualism in the Cyprus context, psycholinguistic dimensions of bilingualism, language attitudes toward the Cypriot dialect, languages in contact, sociolinguistic

implications in lexical borrowing and language-in-education policy and planning.

### Stephanos Stephanides Professor

His main research interests are in comparative studies in world literature with a special interest in the colonial and post-colonial literature of India, the Caribbean and Latin America, poetry and poetics, the interface of anthropology and literature, translation and intercultural studies, literary translation.

#### •Dina Tsagari

#### Lecturer

Foreign and second language teaching and learning: Language course design and materials (development and evaluation of EFL courses and curricula, EFL materials design, evaluation and impact, linking of EFL textbooks and curricula to the CEFR); Language testing (impact/washback, development/validation, ethics, policies and practices in testing of young learners, computer-based tests, linking of tests to the CEFR); Language assessment (teacher assessment literacy, alternative methods of assessment such as self-assessment, peer-assessment, portfolio assessment, etc); Teacher evaluation; Adult and distance learning education in HE.

#### • Evy Varsamopoulou Associate Professor

English and European Romanticism, aesthetics, the artist novel (Künstlerroman), the sublime (18th to 20th century), comparative literature, the ancient Greek novel, history and theory of the novel, autobiography, literary theory, anti-colonial theory, cultural theory, philosophical approaches to literature and film-particularly, ethics, phenomenology, existentialism, political philosophy, Kantian and post-Kantian aesthetics, psychoanalysis, time and narrative, subjectivity and gender, community and identity.

#### **Contact Details**

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# **French Studies and Modern Languages**

Le Département d'Études Françaises et de Langues Vivantes offre une formation sousgraduée sanctionnée par le Diplôme en Études françaises (niveau Master 1) et une formation post-graduée sanctionnée par le Master en Études francaises (niveau Master 2). Au niveau sous-gradué, les cours, d'une durée de quatre ans, permettent aux étudiants d'acquérir et de renforcer leurs connaissances dans les domaines de la culture, de la linquistique et de la littérature françaises et de commencer à se spécialiser dans l'une de ces branches. Au niveau Master, les cours visent l'approfondissement des connaissances dans des domaines choisis au sein de ces orientations et préparent à l'exécution d'un projet de recherche. La formation répond non seulement aux besoins du savoir universitaire mais aussi aux exigences des nouvelles réalités européennes.



#### Introduction

Le Master auquel conduisent ces études sanctionne une qualification scientifique de haut niveau, permet le passage d'un entraînement sous-gradué le plus souvent pluridisciplinaire à une formation post-graduée interdisciplinaire, et peut assurer:

- des débouchés professionnels dans divers domaines: enseignement public ou privé à Chypre et en Europe, fonction publique à Chypre ou dans d'autres pays européens, animation culturelle, médias, secteur tertiaire public ou privé, entreprises et organismes internationaux, etc.
- une formation de chercheur : le Master permettra aux étudiants de se préparer pour des études doctorales en acquérant les bases méthodologiques et l'expérience requise, mais aussi en travaillant sur un projet personnel qui pourra fournir la matière d'une thèse de Doctorat.

Le Programme s'adresse à tous les étudiants francophones:

- aux diplômés du Département d'Études françaises et de Langues vivantes qui veulent continuer à se spécialiser dans le domaine des Études françaises
- aux diplômés d'autres Départements de l'Université de Chypre qui désirent ajouter une dimension française et européenne à leur première spécialisation (sciences humaines et sociales, études administratives, langues et littératures, etc.)
- aux diplômés d'autres Universités voulant entreprendre une formation post-graduée à l'Université de Chypre
- aux diplômés voulant travailler sur tous les thèmes relevant du cursus, ainsi que sur des questions relatives à Chypre (par exemple, les mondes hellénophone et turcophone, la Méditerranée, le Moyen Orient, l'insularité, le colonialisme et le post-colonialisme, le bilinguisme et la diglossie, etc.)
- aux diplômés de la diaspora chypriote
- aux diplômés originaires des pays méditerranéens faisant partie de la Francophonie

Ainsi, le Master en Études françaises s'adresse à un très large public, national et international, autant par son cursus que par le fait que tous les cours se déroulent dans la langue internationale qu'est le français.

#### Admission dans le Programme du Master

Les candidats à l'admission au Programme du Master doivent détenir, à la date limite indiquée, un diplôme sous-gradué en études françaises ou en sciences humaines et sociales. Ils doivent normalement avoir obtenu à ce Diplôme une moyenne de 65/100 ou son équivalent et/ou avoir montré de solides aptitudes pour la recherche. Les candidats possédant un diplôme dans une discipline apparentée doivent parler et écrire couramment le français.

Le Département se réserve le droit de demander aux candidats admis de suivre, si nécessaire, des cours sousgradués qui manqueraient à leur formation (cours de Méthodologie de la Recherche ou autres). Ces cours additionnels seront suivis de façon concomitante avec les cours de la première année du Programme de Master ; les notes obtenues (Réussite/Échec) n'affecteront pas le nombre total de crédits prévus dans le Programme de Master.

Le ou les thèmes généraux des cours et séminaires offerts dans le cadre du Master ainsi que le nombre de places disponibles chaque année seront annoncés au mois de mars et/ou au mois de septembre.

#### Procédure

Les candidats devront soumettre au professeur responsable du Programme du Master:

- une lettre de motivation en français (2-3 pages)
- un curriculum vitae en français
- une copie de leur diplôme sous-gradué accompagné du Supplément au Diplôme – SD ou du relevé détaillé de leurs notes
- un échantillon de travail : court article, extrait de mémoire, etc. (facultatif)
- deux lettres de recommandation qui devront être envoyées par les répondants directement au Département

Les dossiers de candidature seront examinés par la commission du Master du Département. Si cette commission le juge nécessaire, les candidats retenus seront convoqués pour un entretien ou une vidéoconférence. Une fois la recommandation faite, la sélection définitive des candidats sera prononcée par le Conseil du Département.

#### Durée du programme

Le programme s'étend sur trois semestres au cours desquels les étudiants sont tenus d'être présents à l'Université de Chypre. Cependant, ils peuvent séjourner dans une Institution étrangère pendant l'un de ces trois semestres (durée maximale autorisée par le règlement de l'Université de Chypre). Le Département doit informer les étudiants des possibilités qui leur sont offertes dans le cadre des échanges LLP/Erasmus. Dans le cadre des programmes d'échanges et de collaboration entre l'Université de Chypre et des Départements, Laboratoires ou Centres de Recherche à l'étranger, il est également envisagé d'organiser des directions conjointes des mémoires et de prévoir un séjour dans l'institution étrangère.

#### Crédits

Les étudiants du programme de Master doivent obtenir un total de 90 crédits (ECTS). Ceux-ci sont répartis de la façon suivante:

- Premier semestre: 3 séminaires de 10 ECTS chacun, soit 30 ECTS
- Deuxième semestre: 3 séminaires de 10 ECTS chacun, soit 30 ECTS
- Troisième semestre: Projet de recherche sous la direction d'un enseignant-chercheur du Département et rédaction du mémoire, soit 30 ECTS

Exceptionnellement et après autorisation du Comité du Programme de Master du Département, les étudiants pourront remplacer un cours au maximum de leur programme d'études par un cours d'un autre programme postgradué de l'Université de Chypre doté du même nombre de crédits, à condition que ce cours soit en rapport direct avec le sujet de leur mémoire.

#### Cours

Les cours ont la forme de séminaires. Le contenu des séminaires dispensés pendant un même semestre ou une même année est, dans la mesure du possible, organisé autour d'une thématique centrale afin de garantir la cohérence des enseignements offerts, de permettre un approfondissement plus effectif des connaissances et de promouvoir la participation active au débat scientifique. La présence aux colloques et conférences organisés par le Département fait partie intégrante du programme; le contenu de ces colloques et conférences peut faire l'objet de travaux écrits notés.

Les thématiques du programme sont énumérées cidessous et suivies d'une liste possible de cours, parmi lesquels le Département choisira ceux qui seront enseignés.

Des descriptifs préciseront l'orientation que le professeur responsable donnera à chaque cours.

#### Thématique I: Des passés aux présents: langues, littératures, cultures

- GAL 500 Philosofica: Philosophes grecs et lettres françaises
- GAL 501 Fiction(s) et Histoire(s)
- GAL 502 Créativité et création dans le mouvement surréaliste
- GAL 503 Avant-gardes et théories du genre
- GAL 504 Traitement du langage écrit
- GAL 505 L'élaboration et le maintien du français standard
- GAL 506 De la communication au cyberdiscours
- GAL 507 Lectures du mythe des origines : littérature et arts
- GAL 508 Le philosophe dans son jardin imparfait : Montaigne et la tradition philosophique antique
- GAL 509-519 Thèmes spécifiques

### Thématique II: Histoire intellectuelle et Théorie contemporaine

- GAL 505 L'élaboration et le maintien du français standard
- GAL 520 Les avant-gardes du XXe siècle
- GAL 521 La Théorie au pluriel: de la pensée 68 aux études culturelles
- GAL 522 Réactions et réactionnaires: Luc Ferry, l'affaire Sokal, Daniel Lindenberg
- GAL 523 Lettres françaises et droits de l'homme
- GAL 524 L'Europe interculturelle: mosaïque de langues, carrefour de discours
- GAL 525 Le sens en contexte
- GAL 526 Les théories de l'apprentissage des langues et leur réalisation en didacticiels
- GAL 527 Histoires de la Révolution française : le point de vue des contre-révolutionnaires
- GAL 528-539 Thèmes spécifiques

#### Thématique III: Passages, transferts et traductions

GAL 540 Langues et/ou littératures "mineures" et "majeures"

- GAL 541 L'appropriation des langues
- GAL 542 Langues, régionalismes et immigrations
- GAL 543 La traduction: le modèle interprétatif

GAL 544 Poetica: Les enjeux de la traduction poétique

- GAL 545 Traduction automatique: traductologie et traductique
- GAL 546 Géographies littéraires et littérature mondiale
- GAL 547 La production des espaces: Lefebvre, Deleuze et Guattari, de Certeau, Jacob
- GAL 548-559 Thèmes spécifiques

#### Thématique IV: Textes, science, médias

- GAL 526 Les théories de l'apprentissage des langues et leur réalisation en didacticiels
- GAL 545 Traduction automatique: traductologie et traductique
- GAL 560 Sœurs ennemies? Histoire et actualité des rapports entre la littérature et la science
- GAL 561 Cultures du visuel: image, cinéma, art
- GAL 562 Langue populaire et bande dessinée
- GAL 563 Le corps-spectacle
- GAL 564 La presse écrite: discours et interprétations
- GAL 565 Dictionnairique: lexique(s) et idéologie
- GAL 566 Traitement automatique des textes et extraction des informations
- GAL 567 Traduction et textes techniques
- GAL 568-579 Thèmes spécifiques

#### Thématique V: Identité, Culture, Politique

GAL 507 Lectures du mythe des origines : littérature et arts

- GAL 508 Le philosophe dans son jardin imparfait : Montaigne et la tradition philosophique antique
- GAL 524 L'Europe interculturelle: mosaïque de langues, carrefour de discours
- GAL 527 Histoires de la Révolution française : le point de vue des contre-révolutionnaires
- GAL 580 Le Genre: une catégorie valable?
- GAL 581 Les corps du texte
- GAL 582 Langue et politique
- GAL 583 Littérature et politique
- GAL 584 Sujet, écriture et création
- GAL 585 Ego ou les transformations de l'autobiographie moderne
- GAL 586-598 Thèmes spécifiques
- GAL 599 Mémoire de Master
- GAL 600 Prolongation du Mémoire de Master

#### Mémoire de Master

Le mémoire devra être une œuvre originale, d'une longueur de 10000 mots environ. Le sujet du mémoire et le directeur de recherche devront être choisis par les étudiants au cours du second semestre de leurs études. Pour sa présentation, il faudra suivre les directives et recommandations du Département.
Le mémoire est examiné par une commission de soutenance formée à la fin du second semestre du programme et constituée du directeur de recherche et d'un autre enseignant-chercheur approuvé par le Conseil de Département. Le mémoire devra être soumis mi-avril ou fin octobre, selon le cas, et défendu devant la commission de soutenance dans le mois qui suit. Les étudiants sont autorisés, si nécessaire et avec l'avis conforme du Conseil du Département, à prendre un quatrième semestre pour achever leur travail.

# Les Séminaires

Tous les séminaires sont crédités de 10 ECTS.

#### GAL 500 Philosofica: Philosophes grecs et lettres françaises

Le champ d'études des rapports entretenus entre la littérature et la philosophie (et vice versa) est très vaste. Ces disciplines, qui n'ont pas toujours été séparées comme elles le sont aujourd'hui (en catégories universitaires par exemple), se sont souvent trouvées confondues: ainsi, le discours global des philosophes de l'Antiquité grecque ou des Lumières françaises était aussi littéraire que spéculatif ou critique. Aujourd'hui, l'intérêt renouvelé que chacune des deux disciplines porte à l'autre remet le thème des relations entre la littérature et la philosophie à l'ordre du jour. Le séminaire "Philosofica : Philosophes grecs et Lettres françaises" se donne pour objectif d'envisager le problème général de la réception antique: ses limites, intersections et déplacements; les transformations des contenus ainsi que les processus et stratégies des médiations, sacralisations, transmissions et réappropriations des passés par le présent. Les objectifs du cours sont de former les étudiants à l'analyse des aspects philosophiques des œuvres littéraires, et réciproquement ; à la réflexion sur la proximité et la différence existant entre philosophie et littérature; à l'étude de questionnements philosophiques majeurs à partir d'œuvres littéraires capitales de forme essayiste, romanesque ou poétique.

#### GAL 501 Fiction(s) et Histoire(s)

Ce séminaire s'appuie sur l'idée proposée par Michel de Certeau que faire de l'histoire, c'est marquer un certain rapport au temps. Depuis déjà quelques siècles, l'historiographie occidentale est étroitement liée par son nom comme par sa pratique à l'acte d'écrire ; plus précisément, c'est l'écriture - en tant que moyen permettant la mise en place du 'produit historique' - qui constitue la coupure qui du présent sépare un certain passé. Autrement dit, c'est en essayant de mettre en texte une partie du continuum temporel que celle-ci est aussi mise à distance, devenant ainsi à la fois tradition, res gesta et objet de savoir. Dans ce sens, l'écriture de l'histoire nous permet de gérer un passé, de le définir et de le circonscrire, de mettre en ordre la materia prima des faits hétérogènes ou même d'en 'fabriquer' quelques-uns, ou encore de leur prêter un sens contemporain au lieu d'y 'découvrir' un sens passé. Même si de cette façon on tend à exorciser aussi bien la prétendue souplesse de l'oralité que l'aspect imaginaire du passé, l'écriture de l'histoire semble particulièrement plus proche d'une production de fiction. Tout en évitant l'opacité d'un passé non dit comme de son allure mythique, l'écriture de l'histoire est indissociablement liée au hic et nunc du sujet qui la produit et, par là, à un vouloir-faire, à un désir de contrôle et à un pouvoir politique. De sorte que, dans ce séminaire, l'accent sera mis autant sur le côté fictif ou 'fictionnalisant' de l'entreprise historiographique que sur les manipulations conceptuelles et idéologiques que celle-ci permet.

#### GAL 502 Créativité et création dans le mouvement surréaliste

Les thèmes de la créativité et de la création ont été à l'épicentre de la réflexion surréaliste qui se donnait pour objectif de libérer toutes les forces créatives de l'homme afin de lui permettre de retrouver sa nature de poète ( $\pi$ oiŋtríq-créateur). Les méthodes employées par les surréalistes ainsi que leur justification théorique avaient pour objectif, entre autres, de transformer le regard de l'homme sur sa propre existence, devenu trop rationaliste, en un regard magique. Ce qui se résumerait en une approche cherchant à mettre en évidence l'aspect vierge et innocent du monde, de manière à permettre à la générosité et au désintéressement de prendre le devant sur la vie.

L'invention, la provocation ou la mise en scène de situations aptes à promouvoir la créativité, puis la création artistique, ont permis à ce mouvement d'ajouter une dimension importante à la réflexion autour de la notion de la créativité et de la création littéraire et plus généralement artistique. Les objectifs du cours sont de comprendre les multiples aspects de la réflexion autour du thème de la création et de la créativité artistiques, ainsi que les liens inséparables entre la vie et l'art.

#### GAL 503 Avant-gardes et théories du genre

La nature de la relation entre langue et le monde extralinguistique en général, ou entre langue et société, est sujet qui porte à controverse. Pour certains, la langue reflète la société et la culture des locuteurs (la langue n'est donc que la conséquence de la culture). D'autres pensent la relation inverse: la langue déterminerait ou au moins influencerait la société et notre perception du monde extralinguistique. Dans le premier cas, les divisions du genre en grammaire ne seront que le reflet de celles trouvées dans la société en question. Dans le second cas, la langue créerait en partie ces mêmes divisions. Ce séminaire explore ces deux positions théoriques. Il vise ainsi à l'acquisition d'une connaissance approfondie des principaux courants de pensée qui ont traversé le champ des études féministes à l'origine des études sur la langue et le genre (Lakoff), en particulier ceux appliqués à la langue française (Yaquello, Michard, Khaznadar). A ces travaux s'ajouteront des textes soit philosophiques (Bourdieu, Irigaray, Le Doeuff), soit littéraires (Beauvoir, Wittig), textes à la fois application et réflexion de ces mêmes principes, parfois même avant la lettre (Pizan, Marguerite de Navarre).

#### GAL 504 Traitement du langage écrit

L'importance croissante de la demande en Ingénierie Documentaire explique sa récente évolution technologique: élaborer des procédures informatisées fondées sur des outils à base linguistique pour traiter efficacement l'information numérisée. Les informaticiens du secteur d'activité mentionné travailleront donc de plus en plus avec des linguistes qui ont des compétences en informatique. Dans ce séminaire, l'accent sera mis sur des éléments de linguistique utilisés pour le développement d'outils en linguistique informatique.

L'objectif principal est de présenter les principales approches linguistiques qui tiennent compte du figement et de la polysémie. Leur importance étant très souvent sous-estimée, ces phénomènes constituent les principales difficultés en Traitement Automatique du Langage. Il est question également des applications qui découlent de ces théories, notamment en termes de dictionnaire électronique, tant du point de vue de la langue générale que des langues spécialisées. Ce cours mettra également en évidence d'éventuelles applications du traitement automatique en traduction et en didactique.

#### GAL 505 L'élaboration et le maintien du français standard

#### Idéologies et politiques linguistiques d'hier et d'aujourd'hui

Ce cours de linguistique diachronique a pour objet, non pas les changements internes qui ont affecté la langue française, mais le développement du français normé en relation avec ses locuteurs et son usage. L'approche sera celle de la linguistique socio-historique. On y examinera l'histoire externe du français en se centrant sur le phénomène de la standardisation. Les principaux processus sociaux de la standardisation seront considérés: sélection d'une norme, puis diffusion, acceptation et maintien de celle-ci. Les processus linguistiques à l'œuvre dans la standardisation, élaboration des fonctions et codification, seront aussi discutés.

A chaque étape, la standardisation sera mise en rapport avec les événements historico-politiques qui l'ont influencée ainsi qu'avec les idéologies qui ont modelé la politique linguistique en France. On verra enfin que ces trente dernières années, sous la pression de changements sociaux ou politiques, mais toujours dans la tradition de l'interventionnisme, l'Etat français a fait preuve d'une grande activité dans le domaine linguistique. Celle-ci a eu pour but d'une part de continuer à façonner le standard, mais d'autre part de commencer à faire reconnaître le patrimoine linguistique de la France, représenté par l'ensemble des langues parlées sur le territoire.

A la fin du cours les étudiants auront acquis une connaissance approfondie de l'histoire externe du français, auront réfléchi sur le phénomène de la standardisation linguistique et sur les relations entre politique et linguistique et auront été formés à analyser des textes officiels sur la langue et des études critiques sur les thèmes abordés.

#### GAL 507 Lectures du mythe des origines: littérature et arts

Le séminaire Lectures du mythe des origines : littérature et arts a pour objectif d'étudier les interférences littéraires, artistiques et culturelles du XIIe au XVIIe siècle dans la mythologie des " origines ": origine du monde, origine de l'homme, origine de l'image, origine de l'identité. Pour les mythes des origines, artistes et écrivains chrétiens puisent chez les auteurs anciens, ainsi que dans la tradition biblique et patristique. Ils copient ou réinventent les formes, les expressions et, à des moments décisifs, varient sur les concepts, liés aux contextes économique, politique et social. Nous prenons comme point de départ la notion (chrétienne) de l'origine de l'homme comme un être dualiste – corps et âme – telle qu'elle est transposée dans l'Ecclesia, la société et l'univers même. Dans l'art, la littérature ou les formes d'expression mixte (emblèmes, devises), les interférences jouent sur les plans théologique, philosophique et esthétique. Se posent ainsi les questions suivantes : 'comment lire l'image ?', 'comment interpréter le signe ?' et 'quel statut obtiennent respectivement l'image et le texte ?' Ce sont des questions méthodologiques dont traitent l'iconologie et les théories du signe (sémiotique), encore débattues tout récemment, mais déjà au cœur des discussions menées par les poètes et les savants de la période étudiée, dans laquelle les théoriciens commencent déjà à introduire concepts et approches anthropologiques et sociologiques. Seront ainsi abordées les questions de continuité versus rupture, de paradigmes historiques du savoir, de transformations et déplacements versus continuités du mythe des origines selon le contexte. L'étude du domaine français, dans la mesure où les sources françaises y font elles-mêmes référence, sera également orientée vers le domaine italien. Enfin est introduite une composante comparative, celle de l'espace chypriote, avec le royaume de Chypre, d'abord sous les Lusignan, puis sous les Vénitiens (1191-1571), 'réceptacle' du mythe des origines à travers littérature et arts, en même temps que le lieu par excellence de l'hybride.

#### GAL 508 Le philosophe dans son jardin imparfait: Montaigne et la tradition philosophique antique

À partir des travaux de Pierre Hadot et de ses développements sur la philosophie classique et, plus particulièrement, hellénistique comme " exercice spirituel ", nous étudierons l'œuvre de Michel de Montaigne en retraçant dans ses travaux non seulement les auteurs de la tradition philosophique grecque et romaine, mais aussi cette tradition elle-même. Dans les Essais de Montaigne, la philosophie apparaît aussi comme un art de vivre, comme une interrogation pratique sur la vie de tous les jours. Les grandes questions de la mort, de l'amitié, de la religion sont soumises à un examen critique au point de vue de la nature mortelle et finie de l'homme. En fait, même s'il entre en dialogue avec Socrate, Cicéron ou Sextus Empiricus, même si, à travers son œuvre, transparaissent stoïcisme et scepticisme, Montaigne révolutionne la philosophie en y introduisant de nouvelles thématiques, comme celle du " moi ", ou en réorientant le sens de la pensée philosophique : ce n'est plus la " fuite " et l'ascension de l'âme qui sont l'essence du travail de philosophe, mais la redescente sur terre, au sein du "jardin imparfait". Toutefois, un autre aspect de la tradition antique résonne encore dans les écrits de Montaigne : la philosophie non pas comme theoria mais comme exercice spirituel.

#### GAL 527 Histoires de la Révolution française : le point de vue des contre-révolutionnaires

La Modernité européenne a retenu un aspect "philosophique" de la Révolution française. L'historiographie "officielle" parle d'émancipation de l'humanité, des Droits humains, de République et d'autonomie. On célèbre l'exploit du Peuple, l'esprit révolutionnaire rejoint le mythe de Prométhée, comme si le feu, que ce dernier avait à son service, faisait aussi office d'instrument de purgation contre le passé tyrannique. Encore aujourd'hui, les noms des "affreux contre-révolutionnaires", ceux de Joseph de Maistre et de Louis de Bonald, suscitent peur et méfiance. Mais l'histoire de la Révolution a aussi ses aspects sombres : Chateaubriand et Tocqueville, aussi bien que des philosophes et des historiens outre-manche comme Edmund Burke, Thomas Carlyle ou Lord Acton insistent bien sur ces aspects sombres de la Terreur et de l'égalitarisme à la Procruste comme essence de la Révolution. L'objectif du séminaire est de donner la parole à ces penseurs, les écouter d'une oreille tranquille du sein de notre démocratie tranquille. Dans ce cours, nous serons particulièrement sensible à la parole des femmes, aux crimes de genre (gender crime) dénoncés dans les récits personnels des femmes sous la Terreur. Il se peut que ces crimes annonçaient déjà l'horreur inouïe des armées de la Révolution et, plus tard, celle des deux querres mondiales.

# Programme doctoral en Études françaises

#### Conditions d'admission au Programme doctoral

Les candidats au Programme doctoral doivent, à la date de la publication des places disponibles par le Département, être titulaires d'un Master en Études françaises ou en Sciences humaines ou sociales (niveau doctoral en accord avec le cadre européen 3-5-8 ou français LMD). Les candidats n'ayant pas encore obtenu leur titre mais étant dûment inscrits à un programme aboutissant au Master sont autorisés à déposer une demande d'admission à condition qu'ils aient complété leurs études au 31 juillet de l'année au cours de laquelle ils souhaitent effectuer leur inscription au Programme doctoral.

Les candidats détenteurs d'un diplôme dans une discipline connexe doivent parfaitement maîtriser la langue française à l'écrit et à l'oral; la connaissance d'autres langues est considérée comme un atout supplémentaire.

## **Organisation du Programme doctoral**

#### **Directeur de Recherche**

L'élaboration d'une thèse de doctorat est placée sous la tutelle d'un Directeur de Recherche désigné par le Conseil de Département. Le Directeur de Recherche suit les travaux de recherche de l'étudiant et lui offre soutien et conseils appropriés.

#### **Cours supplémentaires**

Si le Directeur de Recherche juge que cela est utile ou indispensable à la recherche en cours, il peut demander au doctorant de suivre des cours de Master offerts par l'Université de Chypre.

#### Le projet de recherche doctoral

Le candidat soumet son projet à un comité tripartite pour approbation.

#### Examen de synthèse

Le candidat est tenu de passer avec succès un examen de synthèse, dont la passation doit se faire au plus tard au cinquième semestre de ses études doctorales.

#### Thèse de Doctorat

L'élaboration d'une thèse originale de doctorat, laquelle doit apporter une contribution importante au domaine de recherche concerné, constitue un élément obligatoire du programme. La thèse de doctorat doit être rédigée en français.

#### Soutenance de la Thèse

La thèse est publiquement soutenue devant un jury de cinq membres choisi par le Conseil du Département.

Pour plus de renseignements concernant ce qui précède, voyez *Règlements / Conditions d'admission aux Études postgraduées et Dépôt des demandes*, page 16 en anglais, ou adressez-vous au Bureau des Études postgraduées, Service Étudiants (tél. 22894021/44), ou au Secrétariat du Département (tél. 22894370).

#### Durée du programme

La durée totale des études pour l'obtention du diplôme doctoral ne peut pas dépasser huit (8) ans à partir de l'inscription au programme. Les candidats peuvent

effectuer jusqu'à une année civile d'études dans des universités étrangères, dans le cadre de programmes d'échanges universitaires.

#### Dépôt des demandes et places disponibles

La demande est déposée par l'intéressé auprès du Coordinateur des programmes postgradués dans les délais posés par l'Université. Le contingent de places disponibles chaque année est de cinq (5) doctorants. Le dossier de demande doit inclure les documents mentionnés dans le paragraphe "Dépôt des demandes " des programmmes postgradués (Règlements / Conditions d'admission aux Études postgraduées et Dépôt des demandes, page 14). De surcroît, la demande doit inclure a) un échantillon de travail (article, chapitre de mémoire, etc.) et b) une documentation prouvant la parfaite connaissance de la langue française et éventuellement d'autres langues.

Les candidatures seront examinées par le Comité du Programme doctoral du Département qui peut, s'il le juge nécessaire, convoguer les candidats sélectionnés à un entretien, une téléconférence et/ou un examen écrit. La proposition finale du Comité est soumise à l'approbation du Conseil de Département.

# Domaines de recherche des enseignants-chercheurs du Département

# Fabienne Baider

# Professeur Associé

Linguistique française: a) sémantique du syntagme nominal (en particulier résolution du sens contextuel); b) pragmatique: discours (publicitaire, touristique) et performativité. Dictionnairique: a) idéologie et discours lexicographique; b) marque étymologique et emprunt lexical (notamment dans son rapport langue " majeure ", langue " mineure "); c) approche diachronique (pratiques discursives historiques). Théories féministes: a) catégorie genre comme catégorie d'analyse linguistique (analyse discursive, interactionnelle et textuelle); b) féminisation vs généricité.

#### • Evelien Chayes Lectrice

Littérature comparée et histoire des idées. Moven âge -Renaissance - XVIIe siècle. France - Italie - Pays-Bas. Poésie et sciences naturelles; rapports entre théologie, philosophie et littérature ; rhétoriques et poétiques ; théories et pratiques de (ré)invention des genres littéraires ; académies françaises et italiennes ; appropriation et fonction de la philosophie de

Marsile Ficin et des Néoplatoniciens plus anciens dans les créations littéraires : hétérodoxie.

# May Chehab

#### Professeur Associé

Littérature comparée et étude des échanges de la littérature avec les autres formes de discours d'une société: a) réceptions et intertextualités de la littérature et de la philosophie de la Grèce antique dans les lettres et la pensée françaises (XVIIIe, XIXe, XXe et XXIe s.); b) réceptions et intertextualités des lettres anglaises et américaines dans les lettres françaises aux XVIIIe, XIXe et XXe s.; c) lettres françaises et droits de l'homme ; d) le discours scientifique dans le discours littéraire. Littératures contemporaines: a) poésie et théâtre aux XXe et XXIe s.; b) la nouvelle autobiographie. Histoire de la civilisation européenne: a) histoire des sciences, des découvertes et de l'art en Europe; b) la construction de l'identité européenne; la République des Lettres en Europe.

#### Panagiotis Christias Professeur Assistant

a) Platon, saint Paul, philosophie antique et hellénistique, platonisme et tradition platonicienne (Pères Grecs de l'Église, Pléthon Gémiste, Leo Strauss), b) Les Anciens et les Modernes: philosophie des passions communes (philosophie classique et hellénistique, auteurs des XVIIe, XVIIIe, XIXe siècles en France), c) Dynamique de l'Occident: Machiavel, Bodin, Montaigne, Descartes, Pascal, Montesquieu, Rousseau, d) Le roman social français du XIXe siècle, e) La pensée sociale allemande à l'époque wilhelmienne: Friedrich Nietzsche, Georg Lukács, Georg Simmel, Max Weber, Walter Benjamin, Thomas Mann, f) Théories sociologiques, sociologie compréhensive, théories de l'imaginaire, sociologie de la littérature néo-hellénique.

#### Yiannis E. Ioannou Professeur

Littérature française: XIXe et XXe siècle, le mouvement surréaliste. La poésie française depuis Baudelaire jusqu'au surréalisme. Littérature française et comparée: L'œuvre d'Odysséas Élytis et ses relations avec la littérature et la pensée françaises. Le travail de l'écriture: le phénomène de la création poétique et la francophonie, culture politique.

#### • Fryni Kakoyianni-Doa *Lectrice*

Linguistique française et contrastive : a) Morphologie flexionnelle et dérivationnelle ; b) Syntaxe (parties du discours et classes de mots, adverbes, énoncé, énonciation, syntagmes, grammaire syntagmatique, phrase et approche transformationnelle); c) Lexicologie (sémantique lexicale, fonctionnement de la polysémie, classes lexicales, classement et regroupement du lexique); d) Phonétique et phonologie (code phonographique et orthoépie); e) Sociolinguistique et dialectologie (langues minoritaires). Linguistique appliquée: didactique du FLE (sémiotique de l'image, son et l'image, neurolinguistique, nouvelles technologies.

# Apostolos Lampropoulos Professeur Assistant

Théories de la littérature: formalisme, structuralisme, narratologie, théories de la représentation, théories de la réception et de la lecture, herméneutique, déconstruction, post-modernisme, post-structuralisme. Études culturelles: études du corps, études de l'espace, études filmiques, cybercritique, réceptions de la pensée française contemporaine dans le monde anglo-saxon et grécophone. Littérature comparée: intertextualité, genres littéraires, relations texte - image, géographies littéraires, littérature mondiale, littératures française et grecque du XIXe et du XXe siècle.

#### Efi Lamprou

#### **Professeur Assistant**

Linguistique et traduction automatique: a) description linguistique destinée à la traduction et au traitement automatique de la langue (reconnaissance et génération des structures textuelles), b) description des propriétés et particularités syntaxiques et sémantiques de la langue naturelle, c) classes d'objets et classes sémantiques, d) actualisation des prédicats nominaux, e) constructions à verbe support et figement, f) dictionnaires électroniques, g) polysémie, h) applications du modèle des classes d'objets dans l'acquisition du vocabulaire en grec et/ou en français langues étrangères. Approche linguistique de la traduction: problèmes linguistiques et pratiques de la traductio (correspondanceséquivalences, absence de déverbalisation, règles de transformation, contexte et bagage cognitif).

#### Martin Voehler

#### **Professeur Assistant**

Pindare, Horace et Poésie lyrique. Poétique, Rhétorique et Herméneutique dans l'Antiquité et au temps présent. Philhellénisme. Histoire et Théorie de la traduction littéraire. Lumières, Classicisme de Weimar, Romantisme.

# **Contact Details**

#### Secrétariat du Département

Androulla Koufalidou Tél.: 22894370 Fax: 22894387 e-mail: koufalidou.androulla@ucy.ac.cy

http://www.ucy.ac.cy/frml-fr

# **Turkish and Middle Eastern Studies**

The Department of Turkish and Middle Eastern Studies offers a Programme of Postgraduate Studies which leads to the degrees of M.A. (Master) and Ph.D. The programme provides for a choice of basic directions. The choice of direction is made in combination with a choice of field within the direction. At present, two directions are offered:

- History and Politics
- Linguistics and Literature



# Introduction

The Department of Turkish and Middle Eastern Studies offers a Programme of Postgraduate Studies which leads to the degrees of M.A. (Master) and Ph.D. The programme is published in the Department's prospectus and is governed by the general Regulations for Postgraduate Study which were approved by the Senate on 26th February 1998.

# **Directions**

The programme provides for a choice of basic directions. The choice of direction is made in combination with a choice of field within the direction. At present, two directions are offered:

(a) History and Politics

(b) Linguistics and Literature.

## Structure of the Master Programme

At Master level the Programme requires the completion of 90 ECTS, which are chosen from the basic fields and from individual courses, as follows:

#### **Core Courses**

TUR 601 Problems of Research and Methodology in Turcology TUR 620 Specialized Academic Texts TUR 640 Archival Texts Seminar

#### Directions

#### (a) History and Politics

#### Fields

TUR 700-719 Pre-Ottoman and Ottoman History TUR 720-739 Modern Turkish History TUR 740-759 History of the Balkans TUR 760-779 History of the Middle East TUR 780-799 Islam: Religion, Culture

#### (b) Linguistics and Literature

#### Fields

TUR 800-819 Ottoman Literature TUR 820-839 Turkish Philology TUR 840-859 Turkish Literature TUR 860-879 Turkish Linguistics

Note: Each course carries 7 ECTS.

The courses are divided as follows:

- Core courses 21 ECTS
- Directions 35 ECTS
- Postgraduate Dissertation 34 ECTS

The core courses are compulsory for students taking either direction. The 35 ECTS taken under the respective directions are composed as follows:

- Twenty-one (21) ECTS within the student's chosen Field
- Fourteen (14) ECTS for other basic fields, within or outside the student's Field

Upon approval of the Postgraduate Studies Committee it is possible to take a certain number of credits from postgraduate courses in other departments, which may be in any Faculty.

# **Postgraduate Dissertation**

Students taking either direction are required to write a Postgraduate Dissertation, which must be original (34 ECTS).

# Acceptance in the M.A. Programme

Students are accepted in the programme on the basis of the criteria specified in the *Admissions and Attendance Regulations – Application Requirements* on page 16.

In addition, to be accepted in the Master Programme of the Department, students must possess a degree in Turkish Studies, a degree from the Faculty of Letters or a degree in Humanities and Social Sciences. Candidates are required to know the Turkish language. As and when the Department judges it necessary, provision will be made for a special examination to test the adequacy of applicants' knowledge. Knowledge of at least one foreign language (normally English) is essential. Candidates must also prove themselves in an interview or other test which the Department may consider suitable.

# **Duration**

Students must complete three semesters of full-time attendance. The period may be extended, as provided for in the *Admissions and Attendance Regulations – Application Requirements* on page 16.

# **Analytical Programme**

When the availability of positions in the programme is announced, the Analytical Programme and the courses to be taught will be finalised. Below only the general form of the Analytical Programme is presented, without being specific as to Direction or Field.

гстс

	LCIJ
First Semester	
TUR 601 (CC)	7
TUR 620 (CC)	7
TUR 640 (CC)	7
Orientation and Research for Postgraduate Dissertation	9
Total:	30
Second Semester	
From Student's Field (SF)	7
From Student's Field (SF)	7
From Student's Field (SF)	7
Research for Postgraduate Dissertation	9
Total:	30
Third Semester	
From another Field (RE)	7
From another Field (RE)	7
Postgraduate Dissertation	16
Total:	30

#### Note:

CC = Core Course (i.e., course which is compulsory for both directions).

- SF = Student's Field (i.e., course within the student's Direction and chosen field). These courses account for 21 ECTS.
- RE = Restricted Elective (i.e., course from another Field, in either direction). These courses account for 9 ECTS.

# **Doctoral Programme**

The main purpose of the Doctoral Programme is the research for, and composition of, an original academic work on a subject which belongs generally to the subject of Turkish Studies. However, the Doctoral Programme also contains taught classes at postgraduate level on the specific field of Turkish Studies in which the subject of the dissertation falls. If the doctoral candidate already possesses a Master degree which the department judges to be an adequate preparation for the proposed subject

of the doctoral dissertation, then the student is exempted from the taught classes.

Taught classes are followed by the research stage of the dissertation and then by the writing stage. The credits are allocated as follows:

Semester	Stage (research, etc.)	ECTS
1st	Taught classes	30
2nd	Taught classes	30
3rd	Research stage	30
4th	Research stage	30
5th	Research stage	30
6th	Research stage	30
7th	Writing stage	30
8th	Writing stage	30
Total:		240

An assessment (comprehensive examination) of the student's progress must take place by the end of the fifth semester.

#### **Research Stage**

The Research Stage consists of the following:

- a) Submission of a research proposal which must include a description of the sources proposed and the methodology to be employed
- b) Appointment of a Supervisor for each student and Dissertation Committee by the Department
- c) Comprehensive Examination (written and oral examination). The basic fields of Turkish Studies, into one of which the dissertation's subject must fall, are the following: Ottoman History, History and Politics of the Turkish Republic, Ottoman Literature, Contemporary Turkish Literature, Turkish/Turkic Linguistics. Success in the comprehensive examination carries 60 ECTS

#### Writing Stage and Examination of Dissertation

The dissertation is examined by a five-member Committee, whose members are outlined in the Admissions and Attendance Regulations – Application Requirements on page 16.

For more information, see the *Attendance Regulations of Postgraduate Studies* on page 16 or consult the Graduate School (tel. 22894021/44). In addition, the full text of the

doctoral programme regulations is available from the Department's secretariat.

#### **Acceptance in the Doctoral Programme**

- A. Those candidates who already have a Master degree must submit in their application a brief dissertation proposal which includes the sources to be consulted and the proposed methodology. Candidates must know a foreign language, preferably English, and a second foreign language would be considered an advantage.
- B. Those candidates who do not already possess a Master degree must have a first degree either in Turkish Studies or in other fields of the Humanities, as described in the regulations for acceptance in the Master programme. Candidates must in any case be competent in Turkish. They are not obliged to submit a dissertation proposal at this stage, but a dissertation proposal may help them in their application. If the proposal is not included in the student's application for the Master it must be submitted towards the end of his taught classes in the Master programme.

The full text of the doctoral programme regulations is available from the Department's office.

# **Research Interests of the Academic Staff**

#### Christiane Bulut

#### Associate Professor

Turkic varieties of southeast Anatolia, Iraq, west Iran and Azerbaijan; Old Anatolian and Ottoman Turkish; Kurdish; Turkic-Iranian linguistic and cultural contacts; Ottoman and Safavid relations; history / history of settlement under the Eastern Caliphate.

#### Matthias Kappler

Associate Professor

The language of "Karamanli" Literature; Balkan Turkology-Dialects; Greek-Turkish Language Contacts; Late Ottoman Literature.

### Niyazi Mustafa Kizilyürek

#### Professor

Political History of Cyprus, Political History of Modern Turkey, Nationalism.

# Michalis Michael Assistant Professor

Research interests focused on: a) history of the institutions of the Ottoman Empire and the changes after the end of the 16th

century, b) history of Cyprus during the Ottoman period with emphasis on the status of the Orthodox Church, c) the transition from the Ottomans to the British Administration. The changes related to the status of the Orthodox Church of Cyprus, d) study of archival material such as documents and codex material of the Ottoman period of the history of Cyprus, e) study of the post-Ottoman Cypriot historiography concerning the Ottoman period of the island.

#### Börte Sagaster Assistant Professor

The transition from late Ottoman to Modern Literature, Contemporary Turkish Literature, Identity and Society in Turkish Literature, Autobiographies in Turkish Literature.

## • Thomas A. Sinclair

#### Associate Professor

Late medieval Turkish history in Asia Minor, early Ottoman history in Asia Minor and the Balkans; Armenia in the Il-Khanid, Turcoman and early Ottoman periods, with special reference to commerce and administration; medieval Turkish and Ottoman architecture.

#### Theocharis Stavrides

#### Assistant Professor

His research interests focus mainly on the study of a) the history of the early Ottoman Empire (1300-1512), b) Ottoman civilization and culture, and c) the history of Cyprus during the Ottoman period, with special emphasis on society and culture.

#### Martin Strohmeier Professor

Social and cultural history of the Ottoman Empire and Modern Turkey, Development of education, and History of the press in the Middle East.

#### Ioannis Theocharides Professor

The History and the Sources on the institutions of Greek lands during the Ottoman domination, with emphasis on Cypriot History, Ottoman Palaeography and Diplomatics and, in part, Balkan History.

# **Contact Details**

## **Programme Coordinator**

Matthias Kappler Associate Professor Tel.: 22893956 e-mail: mkappler@ucy.ac.cy

#### **Department Secretariat**

Tel.: 22893950 Fax: 22895040 e-mail: andreou.marina@ucy.ac.cy

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# FACULTY OF PURE AND APPLIED SCIENCES

Department of Biological Sciences (48)

> Department of Chemistry (62)

Department of Computer Science (74)

Department of Mathematics and Statistics (82)

Department of Physics (94)

# **Biological Sciences**

The Department of Biological Sciences aims to provide high calibre education through its postgraduate programme, and research in line with international trends in Biological Sciences.

The Department offers studies in the following postgraduate programmes:

- Postgraduate Programmes in Molecular Biology
- Master in Molecular Biology
- Master in Experimental Molecular Biology
- Ph.D. in Molecular Biology
- Postgraduate Programmes in Medical Genetics
  - Master in Medical Genetics
- Ph.D. in Medical Genetics



# Introduction

At the start of the new millennium, Biology is at the forefront of scientific discovery and public attention. The recent delineation of the complete genomic information of humans and several other organisms has provided the foundation for unprecedented advances in understanding life at the molecular level. It has also provided new tools and approaches to medicine, agriculture, biotechnology, and other disciplines. The way Biology is taught, practiced, and understood has been revolutionised through advances in biochemistry, cell and developmental biology, structural biology and genetic manipulations based on molecular biology. Biology has expanded to create novel fields, beyond its traditional scope, via synergies and interactions with information science, chemistry, physics and engineering. In this framework, Biology has become a driving force of discovery and application in the modern economy and industry (biotechnology, agriculture, medicine, pharmaceuticals, to name a few), and a source of improvements in health and guality of life.

# **Objectives**

The Department accepted its first postgraduate students in September 2003 and offers postgraduate programmes leading to the titles of Master of Science and Doctor of Philosophy in Molecular Biology.

The main goals of the Department of Biological Sciences are:

- To develop competitive research programs in the fields of immunology, cell biology, embryology, bioinformatics, genetics, virology, neurobiology, and cancer treatment and prevention
- To offer high quality education and training at the undergraduate and postgraduate level
- To contribute to upgrading of services provided by the public and private sectors in Cyprus, especially those concerning public health, the environment, and medicine

# Postgraduate Programmes in Molecular Biology

- Master in Molecular Biology
- Master in Experimental Molecular Biology
- Ph.D. in Molecular Biology

#### **Admission to the Postgraduate Programmes**

The Department announces positions for each of the above postgraduate programmes separately, after approval from the relevant authorities of the University. The decision on the number of the announced positions is based on the specific needs and capacities of the Department and of each of its faculty members. Consequently, all new students will have prior knowledge regarding the research lab in which they will carry out their research part of the programme (applies to either 'Master in Experimental Molecular Biology' or to 'Ph.D. in Molecular Biology'). Each postgraduate student is encouraged to contact all Departmental Faculty Members (DFM) with the aim of choosing the research lab for carrying out the research part of his/her studies. Upon entry to the programme, every student must have identified a DFM who is prepared to host him/her for developing the laboratory part of the research work.

For information on the application procedures, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat (tel. 22892880/22892894).

In addition to the general requirements, candidates are encouraged to start the admission procedure to the postgraduate programme before the completion of their undergraduate study. However, they must hold an undergraduate degree by the start of the postgraduate programme.

#### Content of the Postgraduate Programmes / General Requirements

The postgraduate programmes of the Department of Biological Sciences include theoretical and research courses at both the Master and Ph.D. levels. For students who enter the Ph.D. programme and have already obtained a Master degree from the University of Cyprus or any other recognized university, it is possible to be exempted from some or all of the required ECTS on a case by case determination.

# MASTER DEGREE IN MOLECULAR BIOLOGY OR EXPERIMENTAL MOLECULAR BIOLOGY

The Master degree in 'Molecular Biology' does not involve a lab-based research dissertation and it is designed for those students who do not wish to work in a research lab during their studies. To obtain this Master degree, candidates must successfully complete 90 ECTS as follows: The course BIO 680 carries 20 ECTS and is compulsory. Seminar attendance (BIO 800 and BIO 801) is also compulsory (Table A). The remaining 70 ECTS are obtained by attending classes from a list of restricted elective courses (Table B). For the completion of the Master Degree in 'Experimental Molecular Biology' 90 ECTS are required, 60 of which are obtained by attending classes from restricted elective courses (Table C), as well as by attending the seminar classes (BIO 800 and BIO 801) which are also compulsory. Another requirement is to carry out a compulsory lab-based research dissertation whose duration is at least one semester and which carries 30 ECTS (Table D). After its completion, this dissertation will be presented in the form of an open seminar. Candidates must also successfully pass an oral before a three-member examination Special Examinations Committee. They will be examined mainly on their research dissertation, as well as on subjects they were taught during the courses they undertook as part of their postgraduate programme.

For more information on the composition of the Special Examinations Committee, see the Admission and Attendance Regulations – Application Requirements on page 16 or consult the consult the Graduate School (tel. 22894021/44) or the Department's Secretariat (tel. 22892880/22892894).

The duration of study is at least three semesters with a maximum of eight semesters. Students enrolled in either of the two Master programmes will be allowed to apply for a change of Master programme by the second semester of their studies, which will be subject to approval by the CPS and the Departmental Council.

ECTS

# TABLE A

Compulsory Courses (Master in Molecular Biology)		
BIO 680 Scientific Methodology in Molecular Biology	20	
BIO 800 Postgraduate Seminar series	0	
BIO 801 Postgraduate Seminar series	0	

#### TABLE B

Restricted Elective Courses (Master in Molecular Biology)		
BIO 610 Molecular Genetics I	10	
BIO 620 Special Topics in Cellular Biology	10	
BIO 630 Nucleic Acids	10	
BIO 640 Molecular Biology I	10	
BIO 650 Special Topics in Bioinformatics	10	
BIO 660 Developmental Genetics: Embryos, Cells and Genes	10	
BIO 670 Imaging in Biological Sciences	10	

BIO 700 Molecular Biology II	10
BIO 710 Special Topics in Human Genetics	10
BIO 720 Special Topics in Biochemistry	10
BIO 730 Molecular Diagnostics	10
BIO 740 Cellular Communication	10
BIO 750 Cancer Biology	10
BIO 760 Topics in Genomics and Proteomics	10
BIO 770 Biostatistics	10
BIO 850 Experimental Embryology Course	10
BIO 860 Molecular Biology of Tumour Viruses	10

#### TABLE C

Restricted Elective Courses (Master in Experimental Molecular Biology)	
BIO 610 Molecular Genetics I	10
BIO 620 Special Topics in Cellular Biology	10
BIO 630 Nucleic Acids	10
BIO 640 Molecular Biology I	10
BIO 650 Special Topics in Bioinformatics	10
BIO 660 Developmental Genetics: Embryos, Cells and Genes	10
BIO 670 Imaging in Biological Sciences	10
BIO 700 Molecular Biology II	10
BIO 710 Special Topics in Human Genetics	10
BIO 720 Special Topics in Biochemistry	10
BIO 730 Molecular Diagnostics	10
BIO 740 Cellular Communication	10
BIO 750 Cancer Biology	10
BIO 760 Topics in Genomics and Proteomics	10
BIO 770 Biostatistics	10
BIO 850 Experimental Embryology Course	10
BIO 860 Molecular Biology of Tumour Viruses	10
BIO 780 Autonomous Study I	10
BIO 790 Autonomous Study II	10
TABLE D	
Research and Dissertation write-up (Master)	
BIO 830 Master Research dissertation	30
BIO 600 Continuation of Master Research dissertation	1

# PH.D. DEGREE IN MOLECULAR BIOLOGY

Those enrolled in the Ph.D. Programme must complete 80 ECTS by taking postgraduate courses (Table E). They also must attend the seminar series of the Department for at least four semesters (Table F). Candidates who already hold a Master degree in a relevant scientific area or who have attended postgraduate classes in relevant subjects can be exempted partially or up to 80 ECTS, after submitting an application to the CPS and provided that candidates have been advised by their research supervisor regarding this matter.

After the completion of the postgraduate courses (excluding the seminars), candidates will undergo a Comprehensive Examination (BIO 810, Table F). This will involve preparation and presentation of a research proposal in an area different from that of their Ph.D. research dissertation.

Students officially become Ph.D. candidates after their successful completion of the Comprehensive Examination, at the latest by the fifth semester, and provided they have also prepared and presented successfully a research proposal regarding their Ph.D. research dissertation, at the latest by the fifth semester. The two research proposals (Comprehensive Examination and Ph.D. research proposal) will include a detailed description of the aims and methodology and must adhere to internal guidelines and regulations of the Department. Each of these proposals will be presented before a three-member committee (for details about the composition of the three-member committee, see the Admission and Attendance Regulations – Application Requirements on page 16).

After the completion of the theoretical classes and while they carry out their Ph.D. research, candidates are obliged to enroll every semester in the appropriate research stage of their Ph.D. (Table G). Towards the end of their research and during their Ph.D. thesis write-up, students enroll in the 'Write-up Stage' (BIO 835-BIO 839, Table G).

For the evaluation of the direction and progress of the candidate's Ph.D. research work, each candidate must give an oral presentation before the three-member committee regarding their research progress, within one year of their successful completion of the Comprehensive Examination.

The Ph.D. thesis defence takes place before a fivemember Examination Committee (for details on the composition of the three-member committee, see the *Admission and Attendance Regulations – Application Requirements* on page 16). In addition, prior to submission of the Ph.D. thesis dissertation, the Department requires that every Ph.D. candidate has at least one first-author publication (or accepted for publication) of innovative research work.

## TABLE E

Restricted Elective Courses (Ph.D. in Molecular Biology)	
BIO 610 Molecular Genetics I	10
BIO 620 Special Topics in Cellular Biology	10
BIO 630 Nucleic Acids	10
BIO 640 Molecular Biology I	10
BIO 650 Special Topics in Bioinformatics	10
BIO 660 Developmental Genetics: Embryos, Cells and Genes	10
BIO 670 Imaging in Biological Sciences	10
BIO 700 Molecular Biology II	10
BIO 710 Special Topics in Human Genetics	10
BIO 720 Special Topics in Biochemistry	10
BIO 730 Molecular Diagnostics	10
BIO 740 Cellular Communication	10
BIO 750 Cancer Biology	10
BIO 760 Topics in Genomics and Proteomics	10
BIO 770 Biostatistics	10
BIO 850 Experimental Embryology Course	10
BIO 860 Molecular Biology of Tumour Viruses	10
BIO 780 Autonomous Study I	10
BIO 790 Autonomous Study II	10

#### TABLE F

Compulsory Courses (Ph.D. in Molecular Biology)		
BIO 800 Postgraduate Seminar series	0	
BIO 801 Postgraduate Seminar series	0	
BIO 802 Postgraduate Seminar series	0	
BIO 803 Postgraduate Seminar series	0	
BIO 810 Comprehensive Examination of Ph.D. students	0	

#### TABLE G

Research and Thesis write-up (Ph.D.)	
BIO 820 Ph.D. Research Stage I	30
BIO 821 Ph.D. Research Stage II	30
BIO 822 Ph.D. Research Stage III	30
BIO 823 Ph.D. Research Stage IV	30
BIO 824 Ph.D. Research Stage V	30
BIO 825 Ph.D. Research Stage VI	30
BIO 826 Ph.D. Research Stage VII	30
BIO 827 Ph.D. Research Stage VIII	30
BIO 828 Ph.D. Research Stage IX	10
BIO 835 Ph.D. Thesis Write-up Stage I	30
BIO 836 Ph.D. Thesis Write-up Stage II	30
BIO 837 Ph.D. Thesis Write-up Stage III	10
BIO 838 Ph.D. Thesis Write-up Stage IV	10
BIO 839 Ph.D. Thesis Write-up Stage V	10

# **Postgraduate Programmes in Medical** Genetics

Master in Medical Genetics

ECTS

Ph.D. in Medical Genetics

# Entry to the Postgraduate Programme

The Department in collaboration with the Cyprus Institute of Neurology and Genetics (CING) advertises places for each of the above postgraduate programmes separately, after approval from the relevant authorities of the University. The number of the new places will depend on the specific needs and capacities of the Department of Biological Sciences and the CING. At the time of application, each postgraduate candidate student is encouraged to contact all Faculty members with the aim of identifying a research lab to undertake the research part of his/her studies. Consequently, each new student will have already identified the research lab for postgraduate studies (applies to both the Master and the Ph.D. in Medical Genetics). Pre-requisites for joining the research lab of choice are (a) the consent of the respective Faculty member and (b) the successful completion of courses, identified by the research supervisor. This information is communicated to the candidate at the time of admission to the postgraduate programmes.

Eligible candidates must hold an undergraduate degree from a recognized university with a final general mark of at least 6.5/10 (for graduates from universities in Greece and Cyprus); the equivalent is required for graduates from overseas universities with a different marking system. Those who will hold such a degree by the starting date of the above-mentioned postgraduate programmes are also eligible to apply.

The application must include:

- (a) Curriculum Vitae (CV)
- (b) Transcripts that provide a full listing of grades for all undergraduate degree courses (also for postgraduate courses, if applicable)
- (c) Summary of long-term professional/scholarly/research goals (either in Greek or in English)

Each candidate must provide two recommendation letters, from relevant academics, who must post these directly to the Department. Candidates are encouraged to start the application process to the postgraduate programme well before the completion of their undergraduate study. However, they must hold an undergraduate degree by the start of the postgraduate programme.

The applications are submitted to the Department and are reviewed by a six-member committee (three members from the BIO Department and three members from the CING). The recommendations of the committee are ratified by the Departmental Council. The decisions of the Departmental Council will be forwarded to the School of Pure and Applied Sciences of the University of Cyprus. The Departmental Council reserves the right not to fill all the announced postgraduate places. The committee invites candidates for interviews after a preselection process and is not required to invite candidates who have not met the pre-selection criteria.

## Contents of the Postgraduate Programmes -General Requirements

The new postgraduate programmes include theoretical and research courses at both the Master's and Ph.D. levels, as outlined below. Students accepted for the Ph.D. programme who have already obtained a master degree from the University of Cyprus or any other recognized university, may be exempt from some or all of the required ECTS units on a case-by-case determination, after a decision by the Committee of Postgraduate Studies and approval by the Departmental Council. The requirements for obtaining a master or Ph.D. degree are outlined below.

# **MASTER DEGREE IN MEDICAL GENETICS**

For the Master degree in 'Medical Genetics' candidates must successfully complete 90 ECTS as follows. There are 5 compulsory courses for a total of 50 ECTS (Table A). An additional course for 10 ECTS units can be selected from a list of restricted elective courses (Table B). Attending the seminar classes (BIO 800 and BIO 801) is also compulsory but is not credited with ECTS units (Table C). Candidates must also write a lab-based research dissertation whose duration is at least one semester and which is worth 30 ECTS units (Table D). Upon completion, this dissertation will be presented in the form of a seminar open to the public. Candidates will also have to successfully pass an oral examination by a three-member Examination Committee. They will be examined mainly on their research dissertation but will also be examined on the courses of their postgraduate programme.

The duration of study is at least three semesters with a maximum of eight semesters.

The Examination Committee consists of the research supervisor who is appointed by the Departmental Council prior to the start of the dissertation, one faculty member from the Department of Biological Sciences, and a third member from the CING.

The Examination Committee is appointed by the Departmental Council. The Chair of the Examination Committee is the research supervisor of the student.

# ECTS

# TABLE A

Compulsory Courses (Master in Medical Genetics)			
BIO 610	Molecular Genetics I	10	
BIO 611	Methodologies and technologies applied		
	in Medical Genetics	10	
BIO 612	Cytogenetics and Genomics	10	
BIO 613	Gene and Cell Therapy	10	
RIO 61/	Neuroscience and Neurogenetics	10	

#### TABLE B

Restricted Elective Courses (Master in Medical Genetics)			
BIO 620	Special Topics in Cell Biology	10	
BIO 630	Nuclei Acids	10	
BIO 640	Molecular Biology I	10	
BIO 650	Special Topics in Bioinformatics	10	
BIO 660	Developmental Genetics: Embryos, Cells and Genes	10	
BIO 670	Imaging in the Biological Sciences	10	
BIO 700	Molecular Biology II	10	
BIO 710	Special Topics in Human Genetics	10	
BIO 720	Special Topics in Biochemistry	10	
BIO 730	Molecular Diagnostics	10	
BIO 740	Cellular Communication	10	
BIO 750	Cancer Biology	10	
BIO 760	Topics in Genomics and Proteomics	10	
BIO 770	Biostatistics	10	
BIO 780	Autonomous Study I	10	
BIO 790	Autonomous Study II	10	

#### TABLE C

#### Additional Compulsory Courses without ECTS credits (Master in Medical Genetics)

BIO 800	Postgraduate seminars	0
BIO 801	Postgraduate seminars	0

#### TABLE D

Research and Dissertation write-up (Master)		
BIO 830	Master's Research dissertation	30
BIO 600	Continuation of Master's Research dissertation	1

## PH.D. DEGREE IN MEDICAL GENETICS

Those enrolled in the Ph.D. Programme must complete 80 ECTS units by taking 5 compulsory postgraduate courses (Table E) and 3 restricted electives (Table F). They are also required to attend the seminar series of the Department for at least four semesters (Tables F and G). Candidates who already hold a master degree in a relevant scientific area or who have attended postgraduate classes in relevant subjects can be exempt partially or up to 80 ECTS units, after submitting an application to the Committee for Postgraduate Studies with the agreement of the research supervisor. Whatever exemptions a candidate may receive, he/she is nevertheless required to attend the seminar series of the Department.

Upon completion of the postgraduate courses (excluding seminars), candidates will undergo a 'Comprehensive' examination (BIO 810, Table G) according to the University general guidelines of postgraduate studies. This will involve the preparation and presentation of a research proposal in an area different from that of their Ph.D. research dissertation.

Students officially become Ph.D. candidates after their successful completion of the 'Comprehensive' examination, by the fifth semester at the latest, and provided they have also prepared and successfully presented a research proposal for their Ph.D. dissertation, again, by the fifth semester at the latest. The two research proposals ('Comprehensive' examination and Ph.D. research proposal) must include a detailed description of the aims and methodology, and must adhere to internal guidelines and regulations of the Department. Each of these proposals will be presented before a three-member committee appointed by the Committee of Postgraduate Studies of the Department, upon recommendation from the research supervisor. This three-member committee comprises the research supervisor who is also the chair, one faculty member from the Department of Biological Sciences, and one member from the CING. These two committees may or may not have the same member composition. Candidates may take the 'Comprehensive' exam twice. Upon completion of the coursework and while undertaking their Ph.D. research, candidates are required to enroll every semester in the appropriate research stage of their Ph.D. (Table H). Towards the end of their research and during their Ph.D. thesis write-up, students enroll in the 'Write-up Stage' (BIO 835-BIO 837, Table H).

For the evaluation of the direction and progress of the candidate's Ph.D. research work, each candidate must give an oral presentation regarding their research progress before the three-member committee; the presentation must take place within one year of their successful completion of the 'Comprehensive' exam.

The Ph.D. dissertation thesis cannot be submitted until the candidate has completed at least six semesters of the Ph.D. Programme, has successfully completed his/her 'Comprehensive' exam and has obtained the required ECTS units.

The Ph.D. thesis defence takes place before a fivemember Examining Committee, which is approved by the Departmental Council after recommendation from the research supervisor. This Committee is made up of the research supervisor, one member from the Department of Biological Sciences, one member of the CING, plus two members from a different university or research institute in Cyprus or abroad or a member of a different department from the University of Cyprus who is familiar with the relevant scientific or research area. The chairperson of this committee will be a faculty member of the Department of Biological Sciences; it may not be the research supervisor. Prior to the submission of the Ph.D. thesis dissertation, the Department requires that every Ph.D. candidate has at least one first-author publication (or accepted for publication) of original research work.

Prior to the award of the title of Master in Medical Genetics or Ph.D. in Medical Genetics, the candidate must deposit one copy of the thesis in the Library of the University and one copy in the Department of Biological Sciences.

ECTS

TABLE	E		
Compulsory Courses (Ph.D. in Medical Genetics)			
BIO 610	Molecular Genetics I	10	
BIO 611	Methodologies and technologies applied		
	in Medical Genetics	10	
BIO 612	Cytogenetics and Genomics	10	
BIO 613	Gene and Cell Therapy	10	
BIO 614	Neuroscience and Neurogenetics	10	
TABLE	F		
Restrict	ed Elective Courses (Ph.D. in Medical Genetics)		
BIO 620	Special Topics in Cell Biology	10	
BIO 630	Nuclei Acids	10	

BIO 640	Molecular Biology I	10
BIO 650	Special Topics in Bioinformatics	10
BIO 660	Developmental Genetics: Embryos, Cells and Genes	10
BIO 670	Imaging in the Biological Sciences	10
BIO 700	Molecular Biology II	10
BIO 710	Special Topics in Human Genetics	10
BIO 720	Special Topics in Biochemistry	10
BIO 730	Molecular Diagnostics	10
BIO 740	Cellular Communication	10
BIO 750	Cancer Biology	10
BIO 760	Topics in Genomics and Proteomics	10
BIO 770	Biostatistics	10
BIO 780	Autonomous Study I	10
BIO 790	Autonomous Study II	10

#### TABLE G

Additional Compulsory Courses without ECTS credits (Ph.D. in Medical Genetics)		
BIO 800 Postgraduate seminars	(	
BIO 801 Postgraduate seminars	(	
BIO 802 Postgraduate seminars	(	
BIO 803 Postgraduate seminars	(	
BIO 810 Comprehensive Examination of Ph.D. students	(	

#### TABLE H

Research and Thesis write-up (Ph.D.)	
BIO 820 Ph.D. Research Stage I	30
BIO 821 Ph.D. Research Stage II	30
BIO 822 Ph.D. Research Stage III	30
BIO 823 Ph.D. Research Stage IV	30
BIO 835 Ph.D. Thesis Write-up Stage I	30
BIO 836 Ph.D. Thesis Write-up Stage II	30
BIO 837 Ph.D. Thesis Write-up Stage III	30

# **Course Descriptions**

#### **BIO 610 Molecular Genetics I**

Human Genome and the molecular basis of inheritance, contribution of modern genetics to medical pathology. Genetic phenomena relating to monogenic and polygenic diseases, meaning of mutations and genetic polymorphisms, DNA linkage analysis and molecular diagnostics, genetic predisposition, germinal and somatic mutations. Inherited kidney diseases, hemoglobinopathies, genetic testing and ethical dilemmas in the practicing of genetic investigation and diagnosis.

#### BIO 611 Methodologies and Technologies applied in Medical Genetics

The course will consist of lectures, laboratory demonstrations for some lectures, and literature studies. Each lecture will be focused on one major method or a group of methods that are applied in Medical Genetics with relevant application examples. Methodology and technology to be covered include: nucleic acids extraction from various tissues, amplification of nucleic acids by PCR, restriction enzyme analysis, gel electrophoresis, Southern blotting, DNA sequencing, DNA repeats analysis, MLPA analysis, DHPLC analysis, DGGE analysis, SSCP analysis, SNP analysis, Real Time PCR, analysis of single cells, Northern blotting, Western blotting, microarray technology, linkage analysis, linkage disequilibrium and association analysis, chromosomal analysis and cell cultures.

#### **BIO 612 Cytogenetics and Genomics**

The aim of this course is to provide education to students in the area of Human Cytogenetics and Genomics. The course will cover all the issues of human cytogenetics and genomics and will focus on understanding the behaviour of small and large size genetic changes and their pathology. In addition, it will target the understanding of medical genomics with special emphasis on the investigation of the human genome in medical research and practice. The lectures will focus on such issues as: introduction to human chromosomes, culture preparation and analysis of chromosomes, chromosomal disorders and syndromes, pre-natal and postnatal chromosomal analysis, laboratory methodologies in cytogenetics, cytogenetics in clinical practice, cancer cytogenetics, chromosomal anomalies in leukaemias, lymphomas and solid tumors, international nomenclature of cytogenetics, introduction to medical genomics, genomic disorders and the molecular mechanism of their development, bioinformatics in the analysis of the human genome, laboratory methodologies and technologies in human genomics and investigation of the human genome for research and diagnostic purposes. In addition to the lectures the course will provide bibliographic referrals.

#### BIO 613 Gene and Cell Therapy

The course, Gene and Cell Therapy (GCT), will include the main aspects of gene therapy and cell therapy. The majority of diseases, inherited or acquired later in life, can be can valid candidates for genetic or cell therapy. To date, several and various approaches towards this destination have been tried. Some of these attempts have been tested with patients in clinical trials; however the majority is at the research preclinical stage since both gene therapy and cell therapy are quite new fields.

The initial scope of this course is to understand the various disease-causing mechanisms and to learn how to identify appropriate targets for gene or cell therapy. Moreover, the various approaches and therapy "tools" which are currently used for gene and cell therapy will be described in detail. Special attention will be given to the methods and routes of delivery and the uses of the various genetic therapeutic

molecules and cells. Finally, there will be an extensive coverage of certain cases of genetic and cell therapy in clinical trials.

#### **BIO 614 Neuroscience and Neurogenetics**

The aim of this course is to provide a broad range of education in various aspects of basic and clinical neuroscience and neurogenetics. Basic concepts of the biological and physiological basis of nervous system function as it relates to human behavior and human disease will be discussed. Principles of cellular and molecular neuronal function and development, as well as of systems of neuroscience will be introduced. General aspects of neurogenetic disorders and their impact in clinical practice will be presented, followed by discussion of specific neurogenetic disorders. These will include the common as well as the rarer inherited disorders of the nervous system such as muscular dystrophies, inherited neuropathies, ataxias, and others. Furthermore, genetic factors that play a role in common neurological and neurodegenerative disorders will be introduced.

#### **BIO 620 Selected Topics in Cell Biology**

Cytoskeleton structure and function. Motor proteins as molecular machines for intracellular transport. Axonal transport and neurodegenerative disease. Structural and functional nuclear organisation in higher eukaryotes. Chromosomes, nucleosomes and regulation of gene expression, nuclear membrane, mechanism and regulation of bidirectional nucleoplasmic transport in higher eukaryotes, nuclear bodies. Overview of state-of-the-art methods in cell biology: high resolution fluorescence microscopy, confocal microscopy, FRET, TIRF, AFM and proteomics.

#### **BIO 630 Nucleic Acids**

The structure and function of nucleic acids (DNA and RNA) is the overall aim in this graduate course. The course offers a comprehensive and an up-to-date account of the structures and physical properties of nucleic acids, with special emphasis on the biological function. The course is targeted for graduatelevel students specializing in molecular biology, biotechnology and molecular genetics and requires introductory-level biochemistry and molecular biology as prerequisites. Some key features of the course include topics in technologies used in the study of nucleic acid structure and properties and state-ofthe-art nucleic-acid-based biotechnological advances.

#### BIO 640 Molecular Biology I

This course requires knowledge of principles of molecular and cellular biology. Emphasis will be placed on the mechanisms that control gene expression in eukaryotes. The following topics will be included: nuclear structure and organisation of DNA and the role of topoisomerases in this organisation; transcription factors and DNA binding motifs; control of transcriptional initiation; activators and repressors; promoters and enhancers; coordinated expression of clusters of genes; termination of transcription, RNA processing; chromatin remodelling (DNA methylation and histone acetylation); micro RNAs and RNA interference.

#### **BIO 650 Special Topics in Bioinformatics**

This course provides an in-depth discussion of bioinformatics methods and algorithms routinely used in fields such as Molecular Biology, Genetics and Genomics. Main objective of the course is that postgraduate students become aware of the principles on which commonly used bioinformatics tools are based, instead of using applications in a 'black box' fashion. This approach is of outmost importance, both for the rational usage and for the correct assessment of the results obtained by such methods. This will be achieved through a series of lectures and discussion sessions. Students will give oral presentations of selected research papers where usage of Bioinformatics methods has provided significant input to wet-lab biological research.

#### BIO 660 Developmental Genetics: Embryos, Cells and Genes

Cellular and genetic aspects of modern Developmental Biology of vertebrates with emphasis on the embryos of humans and experimental animal models such as mice, chicks and frogs. The course is divided in three main parts:

- 1. Embryology at the cellular level and its clinical implications: key embryonic developmental events, embryological methodologies, the development and role of extraembryonic tissues.
- 2. Embryology at the genetic level: examples of genetic aspects of embryonic and extraembryonic development. Modern experimental methodologies for assessing gene function during embryogenesis such as transgenesis, gene knockouts (gene targeting by homologous recombination) and gene knockdowns (downregulation of gene function using RNAi).
- 3. Selected topics in Developmental Genetics. These include embryonic stem cells and trophoblast stem cells. Introduction to Epigenetics in development, the biology and genetics of aging, Evolutionary Developmental Biology.

#### **BIO 670 Optical Imaging in Biology**

The optical microscope has undergone a radical transformation. Recent innovations in lasers, chemistry, molecular biology, detectors, computation and optics have propelled the microscope to the cutting edge of modern biology. These complex machines are now the tools of choice for revealing structure and function in biology. This course explores the principles and practice of modern microscopy. It consists of lectures, demonstrations, discussions and laboratory exercises. In addition, students will also be expected to present and discuss keystone primary research papers in class. Starting with basic optical theory, the course advances through transmitted, fluorescence, confocal and finally multiphoton microscopies. The techniques used for live cell imaging will be emphasized as well as the technologies for labelling of target molecules. The course will be updated every year to take into account new developments in cell imaging approaches and closely related technologies. It is structured towards a technical understanding of techniques, as once they are mastered they can be applied to almost any cell / tissue system or research project.

#### **BIO 680 Scientific Methodology in Molecular Biology**

This course aims at the theoretical training of students, both in the traditional scientific methodology (Scientific Hypothesis formulation, proof and modification through appropriate experimentation and interpretation of results) and in modern data-driven approaches that have emerged after the development of high-throughput technologies.

The course will include the presentation and analysis of various scientific methods and techniques for the design, execution and presentation of Molecular Biology research. To this end, students will be educated in the critical reading and analysis of published research papers and in the presentation of research results and research proposals to an audience and in writing. The students will have to study a number of original and review articles on a subject of biological sciences that they will choose in collaboration with their tutor, as well as to study and understand through the use of special laboratory manuals, the various methods of modern molecular biology, so that they become familiar with routine laboratory methods which molecular biologists use in order to achieve their scientific goals.

#### **BIO 700 Molecular Biology II**

Membrane structure, lipid bilayer, membrane proteins and membrane transport. Carrier proteins, ion channels, membrane potential, intracellular membrane compartments and transport. Regulation of cell cycle and programmed cell death (apoptosis).

#### **BIO 710 Special Topics in Human Medical Genetics**

Presentation of various selected classes of inherited conditions concerning different human systems such as Nephrogenetics, Neurogenetics, Cardiac genetics, Connective tissue conditions, Cytogenetics and others. Emphasis will be placed on common diseases or paradigm diseases such as Polycystic Kidney Disease, Tuberous Sclerosis, Huntington's Chorea, Myotonic Dystrophy, Cystic Fibrosis, Thalassaemia, Cardiovascular conditions, Chromosomal abnormalities and others.

#### **BIO 720 Special Topics in Biochemistry**

Presentation of selected topics in biochemical processes and their potential involvement in disease progression. Examples of topics to be covered are post-translational protein modifications, signal transduction and signalling pathways, receptors and receptor mediated endocytosis, hormonal regulation of metabolism and others. These and other topics will be taught using classical textbooks, recent publications of original work, and review articles in scientific journals.

#### BIO 730 Molecular Diagnostics

Presentation of the available techniques for routine molecular diagnostic methodology in a clinical set up. Commonly used techniques will be presented and their strengths and limitations discussed. Such techniques include: DNA and RT-PCR sequencing, PCR and restriction digests, Single Strand Conformation Polymorphism analysis (SSCP), Primer/ restriction digest engineering, Denaturing Gradient Gel Electrophoresis (DGGE), Single Nucleotide Primer Extension, Allele Specific Amplification, Denaturing High Pressure Liquid Chromatography (DHPLC).

#### **BIO 740 Cell Communication**

Tissue architecture and general principles of cellular communication, types of junctions and adhesive structures and molecules, extracellular matrix. Signaling molecules, membrane and intracellular receptors, signaling cascades and signal transduction, cellular responses. G-protein-linked membrane receptors, cAMP, PKA, phospholipase C-,, IP3, diacyl-glycerol, PKC, CaM kinase, olfactory receptors and photoreceptors. Enzyme-linked membrane receptors, Ras, MAP, PI3, Src, jak-STAT. Notch, Wnt, Hedgehog and NF-ÎB pathways. Cellular communication and regulation of gene expression. Neuronal communication, small molecule and neuropeptide neurotransmitters, action potential-ionic hypothesis, neurotransmitter/ion receptors. Molecular mechanisms of synaptic long-term potentiation (LTP).

#### **BIO 750 Cancer Biology**

This course requires very good knowledge of molecular biology, molecular genetics, and cellular biology, but it also requires knowledge of the basic principles of immunology, virology, physiology and pathology. The course will include lectures as well as group discussions on topics relating to cancer. Each student must prepare and present an in-depth study on a specific topic that will be determined by the professor at the beginning of the semester. The lectures will include, but are not limited to the following topics: understanding the process of carcinogenesis, definition of cancer, cancer pathology and cancer classification; factors that contribute to the promotion, progression and metastasis of cancer. Emphasis will be placed on the molecular mechanisms leading to carcinogenesis (especially aberrations in cell cycle controls) and metastasis. An important component of this course is to present the current methods for the treatment, prevention (including chemoprevention) and early diagnosis of cancer.

#### **BIO 760 Selected Topics in Genomics and Proteomics**

Genome Projects of model organisms: lessons learned through the use of novel technology about the structure, functional organisation and the evolution of genetic information. The post-genomic era and the challenge of deciphering gene product function through the use of DNA arrays for high throughput gene expression analysis, protein and antibody arrays, high throughput protein-protein interaction and crystallography approaches.

#### **BIO 770 Biostatistics**

Study of statistics methodology and analysis and their application in biological systems. Statistics and epidemiology, survival models.

#### BIO 780 Autonomous Study I BIO 790 Autonomous Study II

Bibliographical in-depth research essay on front line research topics that are relevant to the content of the postgraduate curriculum. The student is expected to make use of original and review publications in international journals and prepare a written report of 25-30 pages. Two such essays per semester are generally required.

#### **BIO 800-803 Graduate Seminars**

The students are expected to attend a series of lectures during which invited speakers present research work in the general field of Biological Sciences.

#### **BIO 850 Experimental Embryology Course**

The goal of this laboratory course is to introduce vertebrate developmental biology to graduate students interested in pursuing a research thesis in the field, emphasizing both classic and contemporary approaches. During the course, the students will work with living Xenopus laevis material and take active part in the tutorial sessions, in order to understand how the fertilized egg can generate, in the Xenopus embryo, such a diversity of cell types and complexity of pattern in a period of few days. There is special emphasis placed on the observation and manipulation of living material. The laboratory course includes a comprehensive analysis of both oogenesis and early development and is divided into two overlapping parts that combine tutorial and practical approaches. Students will perform in vitro fertilization of Xenopus eggs and mesoderm and neural induction assays of animal cap explants. Successful induction of the explants is confirmed by morphological, histological and molecular analyses. Finally, students will observe and comment on slides selected to illustrate the organization of the body plan of the amphibian embryo at an early stage of organogenesis. Assigned reading will include materials from Developmental Biology by Gilbert and a large number of published manuscripts. Grading will be based on performance during the laboratory exercises, guality of presentations and a final exam.

#### **BIO 860 Molecular Biology of Tumour Viruses**

The course is aimed at students who are interested in gaining a more in-depth knowledge of the principles of virology, with a particular focus on viruses associated with cancer, many of which have a DNA genome. The genomes of viruses and molecular pathways employed in their replication strategies and the completion of their lifecycles including interaction with the cellular machinery, will be examined. Strategies of viral replication inadvertently leading to loss of cell cycle control, aberrant cellular differentiation, abrogation of apoptosis, and other processes contributing to carcinogenesis will also be examined (e.g., viruses surveyed will include HPV, EBV, KSHV and others). Current advances in the literature will be studied with a direct examination of experimental techniques used in academic discovery. The course will be composed of both lectures as well as literature discussions.

# **Research Interests of the Academic Staff**

# Yiorgos Apidianakis

#### Assistant Professor

Humans have approximately 10 times more bacterial cells than eukaryotic cells, which are in constant interaction. Thus, to a certain degree, we are biologically defined by bacteria. The revolution in the identification of human microbes and their role in health and disease has already begun. For example, intestinal microbes have been linked to various diseases, such as diabetes and cancer. However the bacterial species responsible and the way they may act to induce disease remain unclear.

Our lab studies the identification of bacterial species and the way they might cause cancer. Apart from Helicobacter pylori, no other bacterial species has been confirmed as a causative agent of gastrointestinal cancer – the second leading cause of cancer-related death in both the United States and Europe. Using the simple model organism Drosophila melanogaster, we recently showed that intestinal bacterial pathogens cause the proliferation of intestinal stem cells, which can be directed by oncogenic mutations towards tumor formation and metastasis.

Using molecular genetics, cellular biology, microbiology and the fundamental knowledge of Drosophila as a model organism for human infectious diseases and carcinogenesis, we aim to:

- 1. Identify signaling pathways that link intestinal infection with tumor formation.
- 2. Identify human intestinal bacteria that either induce or suppress cancer.
- 3. Identify bacterial factors that induce cancer and their inhibition through therapeutic treatments.

While we retain our collaborations with various institutions in the United States, our studies will be transferred from Harvard Medical School to the University of Cyprus in 2012.

#### Andreas Constantinou

#### Professor

Dr. Constantinou has dedicated his research efforts to the fight against cancer. Shortly after obtaining his Ph.D. degree he made a breakthrough discovery that linked the regulatory subunit of cAMP-dependent Protein Kinase to an enzyme that regulates the three-dimensional form of DNA, known as DNA topoisomerase I. His subsequent research revealed that genistein, a component of soybeans, is a DNA topoisomerase II inhibitor and an inducer of tumor cell differentiation. He identified the molecular mechanisms by which genistein induces apoptosis in breast cancer cells. He is now evaluating how soybean components could inhibit carcinogenesis either by binding to the estrogen receptor, or by acting as antioxidants.

He has developed assays for the identification and characterization of new cancer therapeutic drugs but he is also strongly interested in the prevention of cancer. His research is designed to test the hypothesis that over 50% of all cancers can be prevented with proper nutrition and lifestyle modifications, and therefore it is possible to identify food components that alone, or in combination, can provide protection against cancer. The focus of his future studies is in the identification of new molecular targets for cancer chemoprevention.

#### Constantinos Deltas

#### Professor

Professor Deltas directs the research Laboratory of Molecular and Medical Genetics, which focuses on problems of inherited diseases as these can be addressed by molecular and cell biology and genetics. Over the years he has developed research and diagnostic programs relating to inherited kidney disorders as well as other inherited diseases such as Cystic Fibrosis, Familial Mediterranean Fever, Thrombophilia and Inherited Thyroid Cancer. He has published significant findings, including the identification of important phenomena pertaining to Cypriot genetics and the Cypriot gene pool, e.g., several Founder phenomena and geographic clustering of mutations. His laboratory was key to the mapping and cloning of the PKD2 gene which is mutated in Polycystic Kidney Disease, and Professor Deltas himself formulated the two-hit hypothesis as a mechanism for cyst formation. His team was the first to map a gene for Medullary Cystic Kidney Disease type 1, and in collaboration with other researchers, especially from London, described a new form of an inherited nephropathy which is endemic in Cyprus (C3/CFHR5 Glomerulonephritis).

In 2010 the Cyprus Research Promotion Foundation awarded Prof. Deltas funding for a Strategic Program (co-funded by the Structural Funds of the European Union) to establish a new research unit, the Molecular Medicine Research Centre, with the following goals:

- Creation of the first large Cypriot Biobank specializing in inherited kidney as well as other genetic disorders which are found among the Cypriot population. Many clinical doctors and research scientists from Cyprus and abroad collaborate in this program.

- Identification, within the Greek Cypriot population, of new mutations and new genes (primary and modifier genes) that are responsible for the onset and progression of inherited conditions. The aim is to construct a genetic map of Cyprus and identify all phylogenetic relationships. The flow of genetic material as evidenced by finding specific mutations from foreign conquerors and visitors is part of the work (see the 30th Edition of the Cyprus Research Centre, 2004, Ministry of Education and Culture, pages 457-459).

- Development of cellular and animal models, the investigation of which will enable the better understanding of the structural and functional properties of Collagen type IV which is expressed in the Glomerular Basement Membrane. The role of micro RNAS and other modifier genes are among the primary interests of Prof. Deltas's team.

Website: http:///www.ucy.ac.cy/mmrc

# Pantelis Georgiades Assistant Professor

Dr. Georgiades heads the Developmental Genetics and Stem Cell Biology/Embryology Research lab, which is interested in understanding the still mysterious embryogenesis and embryo viability at the genetic and cellular level as well as embryonic stem cell biology.

Understanding of the above is very important for the development of genetic or cellular treatments for the most common, but still incurable, pregnancy complications including infertility due to early unexplained miscarriages as a result of early embryo death as well as for the disease of preeclampsia. Moreover, research into embryonic stem cells could contribute to the new field of tissue replacement medicine.

The research of the lab combines cutting-edge embryological, genetic, epigenetic, cellular and molecular methodologies such as culture and microsurgery of embryos, stem cell manipulation, gene inactivation or overexpression in embryos and stem cells, and molecular biology techniques.

The lab shows great interest in the largely unexplored, but clinically important, field of Biology as applied to Medicine concerned with the influences (genetic and cellular) of extraembryonic tissues (such as the trophoblast) on embryo development (with special interest in the remarkable metamorphosis of the initially amorphous embryo, gastrulation) and survival as well as on embryonic stem cells.

# Alexander Kirschel lecturer

The Behavioural Ecology and Evolution Lab examines how ecology, behaviour, and biogeography explain patterns of biodiversity. We are particularly interested in understanding how interactions between related species are affected by resource and interference competition, sexual selection, and genetic relatedness, and how these interactions relate to patterns of phenotypic evolution and species distributions.

We have a number of projects focusing in different aspects of these themes, including research on interactions between related species of birds in sub-Saharan Africa, interactions at the community level between species in Neotropical rainforests, and impacts on endemic species, conservation of interactions between species in Cyprus. We examine patterns of phenotypic variation in traits such as acoustic signals, and in particular song, plumage coloration and morphology, as well as differentiation in genetic markers between populations. We also use experimental methods to determine the impact of phenotypic variation on evolutionary diversification.

Research in the Behavioural Ecology and Evolution Lab typically involves extensive work in the field, where animals can be observed in their natural environment, but also molecular genetic analyses to examine how genetic variation corresponds with phenotypic variation, and geographic studies incorporating use of remote sensing and GIS to relate species distributions and phenotypes to the environment.

# Leondios Kostrikis

#### Associate Professor

The long-term interest of his laboratory is the engineering and production of molecules and technologies for diagnostic or

therapeutic applications of clinical importance. His present and future foci of research activity include studies to develop and produce biomedical applications, including diagnostic nucleicacid-based assays for infectious agents and improved methods of devising and producing novel immunogens and original strategies to induce mucosal immunity. In previous studies, he defined several genetic polymorphisms associated with the transmission of human immunodeficiency virus type-1 (HIV-1) and progression of HIV-1 disease. In previous studies, he developed an automated method for detecting mutations, called "spectral genotyping." Furthermore, he has defined a technology for quantifying copy numbers of genes in human cells, which provides the fundamental component of numerous important applications for rapid and accurate quantification of specific nucleic acid sequences on a "per-cell-basis." He is currently developing technologies aimed at understanding the implications of viral and host determinants on the transmission of HIV-1 and the progression of HIV-1-induced disease. He is also developing diagnostic technologies for the rapid detection of biological agents that may be used as bio-terrorism weapons, such as virulent B anthracis strains and virulent strains of SARSassociated coronavirus. In future studies, his research activities will be broadly focused in the areas of (a) Molecular diagnostics, (b) Immunogen engineering and (c) Pharmacogenetics.

#### Antonis Kyrmizis

#### Assistant Professor

In every eukaryotic cell the genome is packaged into chromatin (the DNA/histone protein complex), whose structure can regulate the transcription of DNA. Post-translational modifications placed on histone proteins, such as methylation, acetylation and phosphorylation, can influence the configuration of chromatin and ultimately control DNA accessibility by the transcriptional machineries. Several cellular enzymes have been discovered so far that can deposit or remove modifications on histones. Therefore, histone modifying enzymes and their underlying modifications play a crucial role in the regulation of gene expression. Driven by the fact that many of these histone modifiers are frequently mutated or lost in human cancer our group is interested in understanding the molecular mechanisms employed by these enzymes and their underlying modifications during gene regulation. Of particular interest to our research are the enzymes that methylate arginine residues on histone proteins known as protein arginine methyltransferases (PRMTs). Our previous work has began to unravel the precise molecular mechanisms by which histone arginine methylation and the associated PRMTs modulate gene activity 1,2. To further our knowledge of this epigenetic mode of gene regulation our current work is focused on three main areas:

- 1. Identify and characterise novel regulators of histone arginine methylation
- 2. Investigate the mechanistic link among histone arginine methylation, PRMTs and the development of cancer
- 3. Identify non-histone substrates of PRMTs and determine the biological function of these novel methylated arginines

To accomplish our research goals we employ interdisciplinary approaches such as molecular biology, biochemical, genetic, genomic and proteomic techniques using both mammalian and yeast cells as model systems. Our long-term goal is to apply the information acquired on the basic biology of histone arginine methylation and PRMTs towards the development of therapeutic targets and diagnostic tools for cancer.

# Chrysoula Pitsouli

# Assistant Professor

One adaptation of all metazoans is the presence of tubular organs, such as the lungs, kidneys and blood vessels, which are dedicated to the transport of essential gases and liquids. Tubular organs arise during development from epithelial progenitors that proliferate, differentiate, migrate and ramify to generate the complex tubular structure of the organ necessary for its specific function. During adult life tubular organs are plastic and can undergo remodeling in two different ways: at the tissue level or at the cellular level. Remodeling at the tissue level involves the activation of dedicated and facultative stem cells or progenitors, which remodel the organ in the event of an injury (i.e., lung regeneration) or upon hormonal stimulation (i.e., the mammary gland). On the other hand, tubular organ remodeling at the cellular level does not involve proliferation; instead, differentiated tube cells respond to the remodeling signals by changing their behavior or shape in response to their environment (i.e., induction of angiogenesis by tumors). Defective developmental or remodeling mechanisms lead to diseases like dysplasia, polycystic kidney disease, hypoplasia and cancer.

Our lab uses genetic, molecular and biochemical methods, as well as state-of-the art microscopy to study tubular organs in Drosophila aiming to identify novel genes and signaling pathways that control development and remodeling of mammalian tubular organs. We focus on the Drosophila tracheal system, which is functionally homologous to both the lung and the blood vessels, because it transports oxygen and other gases throughout the body. In addition, the tracheal system, as the mammalian blood vessels, responds to hypoxia, which is often observed in solid tumors and leads to the induction of angiogenesis to sustain tumor growth. We have recently characterized a model for tracheal system remodeling during development, which utilizes multi-potent epithelial progenitors, as well as a model of adult tracheal system remodeling during intestinal oncogenesis. We will now use these models to understand:

- 1. which signals control remodeling of tubular organs from epithelial progenitors during development;
- 2. which signals control remodeling of adult tubular organs during homeostasis and oncogenesis.

# Vasileios Promponas Lecturer

Research activities of the Bioinformatics Research Laboratory are mainly oriented towards the interpretation of large-scale genomic data and the use of computational methods in order to reveal the principles governing the molecular basis of life. We are mainly interested in the elucidation of protein sequence to structure/function relationships using sequence similarity, statistical and machine learning techniques. In particular, our research focuses on:

- 1. Sequence repeats, low complexity/compositionally biased regions: Investigation of their relation to protein structure and association to protein (mis)function. Study of the evolution of protein repeats.
- Transmembrane and membrane-associated protein topology and structure prediction: Prediction of structural features of membrane proteins. Evolution of transmembrane protein topology / structure / function.
- 3. Sequence-based structural/functional classification of proteins.

4. Computer-aided and automatic Complete Genome Annotation.

The Bioinformatics Research Laboratory has ongoing collaborations with research groups in Cyprus, Greece and the United Kingdom.

## Niovi Santama

#### Associate Professor

The research focus of the Molecular Biology and Biochemistry Laboratory (MBBLab; www.mbblab.net) is on the functional characterisation of molecular motor proteins in mammalian cells. Interest in motor proteins derives from their dynamic role in most cell biological processes: they have been implicated in biological phenomera such as mitotic and meiotic division, chemosensory transduction, early development, signal transduction pathways and axonal transport, to cite some examples.

The current specific interests of the laboratory revolve around the following themes:

- The role of mitotic motors and their interacting proteins in spindle assembly and maintenance and also in mechanisms that regulate centrosome duplication and dynamics in mammalian dividing cells.
- The function of molecular motors in axonal transport and synaptic signalling in mammalian neurons.
- The investigation of the role of aberrant motor protein function in the molecular mechanisms that underlie human neurodegenerative disease and in specific amyotrophic lateral sclerosis, a lethal form of motor neuron disease. The aim is to contribute to the elucidation of the molecular cascades that lead to neuronal cell death, the identification of putative molecular targets and the design of patient molecular diagnostics.

In the framework of this research the laboratory has collaborations with research groups in Germany, Belgium, the UK, Singapore, Denmark, Greece, Spain, Italy and Cyprus.

# Spyros Sfenthourakis

#### Associate Professor

Spyros Sfenthourakis studies distributional patterns of organisms in order to understand how species richness is controlled, how communities are assembled and how living beings are differentiating through interactions of ecological and evolutionary processes. His research focuses on the study of terrestrial invertebrate communities in island groups and mountain ecosystems, as well as the exploration of general patterns and theories within the wider paradigm of island biogeography. These activities entail both theoretical and applied research on biodiversity conservation.

The differentiation of organisms is approached through a combination of morphological and molecular data, using modern morphometric and phylogeographic analysis methods.

There is a special emphasis on the study of endemic species, which are the most vulnerable to the ongoing climate change, as well as on a variety of human activities that transform their habitats. The high endemism and the geographic position of Cyprus offer a unique opportunity for the study of climate change effects on endemic species that live in vulnerable habitats. Such study combines field work, where an extremely detailed distribution of species is recorded and a variety of population and environmental variables are measured, with laboratory work, where polymorphic loci are identified and genealogical and population data are studied. In addition, the distribution of species and environmental variables are enalyzed using GIS, and species distribution models are explored on the basis of several climate change scenarios.

Therefore, the Biodiversity and Ecology Lab offers possibilities for studying a wide range of animal species in their natural habitats, and it also provides for molecular techniques to identify and analyse divergence patterns. Furthermore, it allows us to apply a variety of theoretical models and methods to test hypotheses and predictions concerning community assembly and the future distribution of species.

# Paris A. Skourides Assistant Professor

The goal of our research group is to understand the cellular and molecular mechanisms involved in generating the three dimensional organisation of tissues and the overall process by which the basic body plan of vertebrate embryos is established. During gastrulation cell and tissue movements on a massive scale create great complexity from a very simple starting form, resulting in highly diversified organisms with a precise threedimensional architecture. Elucidating the mechanisms underlying these movements is important, because genetic mutations and environmental insults during gastrulation can lead to significant developmental deformities. Α comprehensive understanding of this process and how it is affected by genetic mutations will help develop diagnostic and therapeutic tools for dealing with human developmental disorders. The study of gastrulation and morphogenetic movements has always demanded cutting edge imaging and the pace of discovery in the field has been set by advances in imaging technologies. The complexity of morphogenetic movements together with our inability to image them in vivo has forced researchers to study each movement isolated from the others. Yet if we are to truly comprehend the way

morphogenetic movements give rise to form we need to begin the process of integrating what we know back to the embryo and view gastrulation as a unified process rather than individual components. Our laboratory, with the use of nanotechnology and specifically the application of Quantum Dot nanocrystals, is developing new imaging methods and technologies which enable the study of morphogenesis at the organismal, cellular and molecular level in vivo. In addition we are exploring the development of new types of nanocrystals and a number of wide ranging applications for Quantum Dots in Biology.

# Katerina Strati

#### Lecturer

Our lab is interested in elucidating the mechanisms of carcinogenesis driven by human papillomaviruses (HPVs). HPVs were first associated with cervical cancer due to the detection of HPV DNA in the majority of tumor biopsies. Since then these viruses have been associated with other types of cancer, such as a subset of head and neck cancers and most other anogenital cancers. Expression of the viral proteins E6 and E7 is thought to be required not only for cancer development but also for maintenance. These two proteins mediate their function by interacting with and modulating important cellular factors such as the tumor suppressors p53 and pRb. Thus we focus our study on the viral oncoproteins and their cellular binding partners. Even though the HPV oncoproteins have been abundantly characterized for their interactions with multiple cellular components the mechanisms of tumorigenesis are not conclusively defined.

We employ in vivo techniques in order to study the function of the viral oncogenes in the tissues which the virus would normally infect. We aim to elucidate the molecular function of E6 and E7 and the mechanisms in which they contribute to carcinogenesis. Details on current projects may be discussed with the lab head.

Note: The research interests of the Cyprus Institute of Neurology and Genetics staff are described at the Institute's website at www.cing.ac.cy

# **Contact Details**

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# Chemistry

The Department of Chemistry prides itself in producing highly skilled scientists in the field of Chemistry, capable of responding to current and future challenges in Chemistry at both national and international levels.

The Department offers graduate programmes at the Master's (M.Sc.) and Doctoral (Ph.D.) level.



# Chemistry Graduate Programme at the University of Cyprus

At present, 60 postgraduate students are enrolled in the graduate programme, 37 of whom are at the Doctoral level. The Chemistry Department has already awarded 40 Ph.D. degrees and 35 M.Sc. degrees.

### **Admission to the Graduate Programme**

The Department admits graduate students every year at the M.Sc. and Ph.D. levels. The applications are submitted to the Secretariat of the Department and are examined by a three-member faculty Graduate Studies Committee (GSC).

For details on the application procedure and evaluation of candidates, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general application requirements, candidates are requested to submit a cover letter explaining the reasons they wish to enter the Chemistry Graduate Programme and to indicate the research area(s) of their interest(s).

#### **Financial Support**

The University of Cyprus provides financial assistance to Chemistry postgraduate students in the form of teaching assistantships. Moreover, the postgraduate students can be supported financially through research programmes in Cyprus or abroad for research work carried out within their Ph.D. or M.Sc. studies.

#### Credit Transfer from other Universities / Previous Studies

The Chemistry Graduate Programme (M.Sc. and Ph.D. levels) includes both classroom courses and bibliographical studies, totalling 60 ECTS. Doctoral students holding an M.Sc. degree from another university may be credited part or all of the 60 ECTS after examination and recommendation by the GSC and approval by the Departmental Council. Moreover, doctoral students may spend up to one calendar year at universities abroad under student exchange programmes. M.Sc. students may attend courses at universities abroad corresponding to a maximum of 20 ECTS. Graduate students may be credited with up to 15 ECTS for courses attended within another graduate programme, after examination and recommendation by the GSC and approval by the Departmental Council.

# Master of Science (M.Sc.) Degree

The minimum duration of studies towards an M.Sc. degree is 1.5 years and the maximum duration is 4 years.

## **M.Sc. Requirements**

To obtain an M.Sc. degree, students must successfully complete 120 ECTS of the M.Sc. Chemistry Graduate Programme, and must write an appropriate Diploma Thesis. The required 120 ECTS are obtained by attending 4 of the courses listed below (10 ECTS each), and 2 Graduate Literature Studies (CHE 800 and CHE 810, 10 ECTS each), while 6 research modules carrying 10 ECTS each are credited through research for the Thesis.

#### **Course Selection and Approval**

M.Sc. students select their courses in agreement with their research supervisors. Course selection must be approved by the GSC.

#### **CHE 800 Literature Study**

M.Sc. students, in agreement with their research supervisors, must enroll in the graduate literature study CHE 800, in the context of which they are required to select a topic from their wider area of expertise, but not from their direct research area. Students must study this topic and present it in the form of a seminar (10 ECTS). The supervision of CHE 800 is carried out by a Chemistry faculty member, who may be the student's supervisor or another Chemistry professor. The central element in the evaluation of CHE 800 is the proven thorough literature survey on the subject of the study, including the latest developments. The examination and grading of this seminar are conducted, after an open presentation, by a two-member committee.

For details on the examination procedure, the grading system and the presentation of the CHE 800 literature study, students may consult the Department's Secretariat.

#### **CHE 810 Literature Study**

M.Sc. students, in agreement with their research supervisors, must enroll in the graduate Literature Study CHE 810, in the context of which they are required to select a topic from their immediate research interest (which will be the topic of their Diploma Thesis). Students

must study this topic and present it in the form of a seminar (10 ECTS). The student's research supervisor is responsible for supervising CHE 810. The central elements in the evaluation of CHE 810 are: (a) the proven thorough literature survey on the subject of the study, including the latest developments and (b) the understanding of basic concepts immediately relevant to the content of the study. The examination and grading of this seminar are conducted, after an open presentation, by a two-member committee.

For details about the examination procedure, the grading system and the presentation of the CHE 810 literature study, students may consult the Department's Secretariat.

#### **M.Sc. Research**

The research topic (experimental or theoretical, or a combination of the two) is chosen in agreement with the research supervisor, and must aim at the production of new, original knowledge in chemistry. The originality of the research must be based on the research findings of the student and should be separated from the work of others, indicating clearly the personal contribution of the student. The thesis should include a literature survey, a description of the research methods used, a discussion of the results, conclusions, and literature references. The Thesis is defended before a three-member examination committee.

For details on the Thesis defence and the composition of the examination committee, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

# Doctor of Philosophy (Ph.D.) Degree

The minimum duration of studies towards a Ph.D. degree is 3.5 years and the maximum is 8 years.

#### **Ph.D. Requirements**

To obtain a Ph.D. degree, students must successfully complete 240 ECTS of the Doctoral Chemistry Graduate Programme, and must write a Ph.D. Thesis on an approved topic. An essential requirement for the defence of a Ph.D. thesis is that the student succeeds in the Chemistry Comprehensive Examination, which takes place the latest by the end of the 5th semester. The required 240 ECTS are obtained by attending 4 of the courses (listed below) carrying 10 ECTS each, 2 Graduate Literature Studies (CHE 800 and CHE 810, 10 ECTS each), the Chemistry Department Seminars (CHE 815, 10 ECTS units), while 17 research modules carrying 10 ECTS units each are credited through research for the Ph.D. thesis. Procedures for course selection and the coverage of the Graduate Literature Studies CHE 800 and CHE 810 are the same as those for the M.Sc. Thesis.

#### **Chemistry Department Seminars**

Within CHE 815, Ph.D. students who have passed the Chemistry Comprehensive Examination must attend at least 4 seminars (lectures) per semester for at least 4 semesters. Students must present a seminar within that period. The seminar is graded by a three-member departmental committee appointed by the Chairman of the Department, after the recommendation of the research supervisor. The grade is submitted upon fulfillment of the requirement for attendance at the Departmental Seminars. In case of failure, the student must present a new seminar during the next semester.

#### Ph.D. Research

In addition to the requirements described in the M.Sc. research given above, Ph.D. research should be of very high standard, such that the results are publishable in recognized, peer-reviewed, international research journals. The Chemistry Department demands as a minimum prerequisite towards a Ph.D. degree that candidates have at least one scientific paper either published or accepted for publication in a journal of their research area.

#### **Ph.D. Comprehensive Examination**

This exam, which is an oral examination, should be taken after the student has completed four semesters of graduate studies. Students who already hold an M.Sc. degree from the University of Cyprus or from another university, who have completed all the necessary ECTS and who have produced sufficient research in the first year of studies, may take the Comprehensive Examination at the end of the 2nd semester, at the earliest.

Each student is examined by a three-member committee. The Comprehensive Examination evaluates the level of understanding of the material in the 4 graduate courses that the student attended. The overall research work of the student, as this appears in a written report submitted by the student to the committee, is also evaluated in terms of the level of understanding of the research topic and the quality and quantity of the work.

For more details about the Comprehensive Examination (content of written report, composition and procedure followed by the three-member committee), consult the Office of Postgraduate Studies, Academic Affairs and Student Welfare Services (tel. 22894021/61) or the Department's Secretariat.

#### **Doctoral Dissertation Proposal**

After passing the Ph.D. Comprehensive Examination and at least one year before the final defence of the Ph.D. Thesis, the Doctoral Dissertation Proposal must be successfully presented before a three-member Chemistry-faculty committee. The purpose of the Proposal is to examine whether the students have progressed with their research and to evaluate the quality, quantity and novelty of the research work.

#### **Ph.D. Thesis Defence**

The Ph.D. Thesis is submitted and defended only with written permission of the research supervisor and the subsequent submission of the thesis to the Chairman of the Department. The Department demands as a minimum prerequisite towards a Ph.D. degree that the candidates have at least one scientific paper published or accepted for publication in an international peerreviewed journal of their own research area. The final examination (defence) of the Doctoral Dissertation is conducted before a five-member examining committee.

For details about the procedure for Ph.D. thesis defence and the composition of the five-member examining committee, see Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/61) or the Department's Secretariat.

#### Chemistry Graduate Courses (M.Sc. and Ph.D.)

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#### **Theoretical Courses**

CHE 610 Physicochemical Methods in Inorganic Chemistry I	10
CHE 611 Physicochemical Methods in Inorganic Chemistry I	10
CHE 612 Physical Chemistry of Polymers	10
CHE 615 Separation Methods and Applications	10
CHE 626 Supramolecular Chemistry	10
CHE 631 Advanced Organic Chemistry I (Organosulfur	
and Organonitrogen Chemistry)	10
CHE 636 Organic Reactive Intermediates	10

CHE 638 Methods for Structure Characterization	10
CHE 640 Basic Principles of Colloid Chemistry	10
CHE 650 Computational Chemistry	10
CHE 651 Raman Spectroscopy	10
CHE 654 The Theory of the Chemical Bond	10
CHE 670 Heterogeneous Catalysis	10
CHE 681 Biochemical Engineering	10
CHE 690 Synthesis, Characterization and Technolo	gy
of Polymers	10
CHE 695 Aquatic Chemistry of Heavy Metals	10
CHE 720 Synthesis and Characterization Methods	
of Inorganic Compounds	10
Graduate and department seminars. The	sis writina
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# CHE 800 Literature Study I 10 CHE 810 Literature Study II 10 CHE 815 Chemistry Department Seminars (for Ph.D. level only) 10 Research and Thesis writing 10 CHE 821-826 M.Sc, Research and M.Sc, Thesis writing 10

CHE 821-826 M.Sc. Research and M.Sc. Thesis writing	10
CHE 880-899 Ph.D. Research and Ph.D. Thesis writing	10

# **Course Descriptions**

#### CHE 610 Physical Methods in Inorganic Chemistry II

**Magnetism:** Introduction, Types of Magnetic Behavior, Diamagnetic and Paramagnetic Susceptibility, The Van Vleck Equation, Applications of the Van Vleck Equation to Specific Situations, Curie-Weiss Law, High spin-Low spin equilibrium, Introduction to Neighbor-Neighbor Interactions, Antiferromagnetic Mechanisms, The Heisenberg-Dirac-Van Vleck (HDVV) Approach, Determination of the Values of the Exchange Parameters (j) in Dinuclear and Trinuclear Complexes, Ferromagnetic Coupling, Magnetic Properties of High Nuclearity Metal Clusters, Single – Molecule Magnetism Behavior.

**Electron Paramagnetic Spectroscopy (EPR):** Basic Principles, Hyperfine couplings, Experimental parameters that affect the EPR spectra, examples.

**Electrochemistry:** Basic Principles, Classification of Electrochemical techniques, Cyclic Voltammetry, Polarography, Chemical Reaction on Electrodes, Electrochemical study of Metal Complexes (experimental parameters that affect electrochemical studies, evaluation of the redox properties of metal complexes and determination of the experimental parameters from cyclic voltammograms and polarograms – E1/2, EPA, EPC, IPA, IPC, n, etc- reversible, quasi-reversible and irreversible redox processes, examples).

#### CHE 611 Physical Methods in Inorganic Chemistry I

- Group Theory: Symmetry, Geometric transformations, Irreducible representations, Character Tables, Applications of group theory to spectroscopy, Molecular orbitals
- Introduction to Spectroscopy: Transitions of atoms and molecules, Selection rules, Determination of concentration

and application in the calculation of equilibrium constant and chemical kinetics, Isosbestic points

- Vibrational Spectroscopy: Vibrations in molecules, 3N-6(5) Rule, Selection Rules, Symmetry of vibrations, Normal coordinate analyses, Absorption bands assignment, Group vibrations, Assignment of vibrations by isotopic enrichment, kinetics of fast reactions, RAMAN spectroscopy, Resonance RAMAN, Fingerprinting, Applications of vibrational spectroscopy in bioinorganic models and metalloenzymes
- Nuclear Magnetism Spectroscopy (NMR): Description of NMR experiment, Bloch equations, pulse NMR, NMR quantum mechanics, Relaxation, Inverse recovery and spin echo experiment, chemical shift and nuclear coupling, determination of structure base on chemical shift and nuclear coupling, selective excitation, NOE, Multinuclear NMR, Quadrupolar nuclei, Variable temperature (VT), Reaction rate determination by VT, Two dimensional spectroscopy (2D), 2D-J-resolved, 2D-COSY, 2D-HETCOR, 2D-NOESY, 2D-EXSY and 2D-Inadequate spectroscopy, Kinetics Reaction rate determination by 2D and 1D transfer magnetization. Paramagnetic NMR. Structure **Determination**, Applications

#### CHE 612 Physical Chemistry of Polymers

- Differences between small molecules and macromolecules. Characteristic lengths and relaxation times. Variation of structure, tacticity, homo- and co-polymers, stereochemical effects, ternary structure, polyelectrolytes. Molecular weights and their distributions and methods to measure them. Osmotic pressure, vapor pressure, light, X-ray and neutron-scattering, ultracentrifugation, viscosity, size exclusion chromatography
- Theoretical studies of the conformations of polymer chains
- Polymers and solvents. Chemical potential and osmotic pressure. Dilute, semi-dilute and concentrated polymer solutions. Good, bad and theta solvents. Flory's solution theory. De Gennes' scaling models. Phase separation in polymeric systems. Polyelectrolytes in solution
- Amorphous phases of polymers. The rubbery state and the theory of rubber elasticity. Melts. Rouse-Zimm dynamic theory in melts. Reptation theory of De Gennes. Glassy phase and the glass transition. Mechanical properties of solids and elastic polymers and viscoelasticity
- Semicrystalline phases. Crystalline lamellae of polymers and the problem of chain reentry. Spherulites, dendrites and other morphologies, liquid crystalline polymers

#### CHE 615 Separation Methods and Applications

The main purpose of this course is to familiarize students with the basic concepts of separation science. It examines a number of chromatographic separation methods and their applications in different areas of industry, medicine, environment, forensic science, food science, etc. The separation methods described in this course are the following:

- Gas Chromatography (gas-solid chromatography, gas-liquid chromatography)
- High-Performance Liquid Chromatography (partition chromatography, adsorption or liquid-solid chromatography, ion exchange chromatography, size exclusion or gel chromatography, thin-layer chromatography)
- Capillary Electrophoresis (capillary isoelectric focusing, capillary gel electrophoresis, capillary isotachophoresis, capillary zone electrophoresis, micellar electrokinetic chromatography, capillary electrochromatography)

#### **CHE 626 Supramolecular Chemistry**

Definition and Development of Supramolecular Chemistry; Host–Guest Chemistry; Energetics of Supramolecular Complexes: Experimental Methods; Templates and Self-Assembly; Molecular Devices; Biological Mimics; Liquid Crystals; Micelles, Liposomes, LB-Films; Layer-by-Layer Assembly of Polyelectrolytes; Fullerenes and Carbon Nanotubes.

#### CHE 631 Advanced Organic Chemistry I

#### (Organosulfur and Organonitrogen Chemistry)

Introduction to the organic chemistry of sulfur; di-, tri-, and tetracoordinate sulfur compounds; organosulfur compounds in natural product chemistry and synthesis; organoselenium compounds. Introduction to the organic chemistry of nitrogen; saturated nitrogen compounds (amines, ammonium compounds and nitrogen bases); unsaturated nitrogen compounds (imines, enamines, amides, nitriles, urethanes, ureas, imides and diimides); nitrogen compounds with N-O or N-N bonds (compounds with N-N bonds, oximes, N-oxides, nitroso compounds, nitro compounds).

#### **CHE 636 Organic Reactive Intermediates**

The course examines reactive intermediate compounds of Organic Chemistry and is based on articles from the chemical literature referring to their structure and physicochemical properties and to experimental methods for their preparation, detection and identification. The compounds examined are neutral species (e.g., diradicals, carbenes and nitrenes, strained alkenes) and ions (carbocations, carbanions).

#### **CHE 638 Methods for Structure Characterization**

Principles of crystallographic symmetry. Methods of structure solution and the phase problem: Patterson maps, direct methods, methods of structure convergence. Comparison of X-ray, neutron and electron diffraction. Mössbauer spectroscopy. Spectroscopic methods for the characterization of solid surfaces EXAFS, XPS, UPS.

#### **CHE 640 Introduction to Colloid Science**

 Matter in the colloidal state. The main types of colloids. Characteristic phenomena in colloid systems and dispersions. Preparation methods for uniform colloids

- Optical properties of colloids. Scattering of light, X-rays and neutrons. Optical microscopy. Polarized microscope. Electron microscope. Atomic force microscopy and scanning tunnelling microscope
- Kinetic properties of colloids. Diffusion. Viscosity. Rheology. Electrophoresis
- Thermodynamics of interfacial systems. Surface tension Contact angle. Elementary theory of nucleation, crystalgrowth and aggregation
- Interparticle forces in colloidal systems. Van der Waals forces, modern theory of Lifshitz. Modern electric double layer theory. Colloid stability, DLVO theory
- Association colloids. Micelles, liquid-crystalline phases of surfactants. Lamellar phases and vesicles, macro- and microemulsions. Colloidal properties of polymers and biological macromolecules

#### **CHE 650 Computational Chemistry**

The course provides an overview of computational methods and their applications in the prediction of physicochemical properties of molecules. Force fields, semi-empirical, DFT and ab initio methods, the most common basis sets and qualitative molecular orbital theory are discussed.

#### CHE 651 Raman Spectroscopy

- Introduction to Lasers
- Raman Spectroscopy: Resonance Raman Spectroscopy, Fluorescence Complications, Depolarization Ratios, Absolute Resonance Raman Cross-Sections, Theoretical Calculations, Time-dependent Perturbation Theory, Homogeneous/ Inhomogeneous Broadening, Pure dephasing
- Time-Resolved methods: Pump-Probe, Stokes and Anti-Stokes Resonance Raman
- Applications: environmental, biological, charge-transfer, reaction dynamics

#### CHE 654 The Theory of the Chemical Bond

Schrödinger's equation. Orbitals of one-electron atoms. Approximate methods for many-electron systems. Theory of molecular orbitals. Approximate treatment of molecular orbitals in standard molecular systems. Hückel theory and its applications in conjugated organic molecules. Aromaticity and antiaromaticity. Quantum chemical calculations on molecules with many electrons. Ab initio computational methods.

#### CHE 670 Heterogeneous Catalysis

- Influence of external mass and heat transport processes on the rate and selectivity of a heterogeneous catalytic reaction.
- Influence of internal mass (diffusion) and heat transport processes within porous catalysts on the rate and selectivity of a catalytic reaction.
- Analysis of experimental rate data of a catalytic reaction.

- Environmental Catalysis: The selective catalytic reduction of NO. From the fundamental research to its applied technology.
- Techniques for studying catalytic reaction mechanisms.

#### **CHE 681 Biochemical Engineering**

Introduction: Biochemical Engineering, biotechnology and industry. The chemicals of life: Proteins, nucleic acids, saccharides and lipids. Enzymes and enzyme kinetics. Enzyme applications. Stoichiometry of microbial reactions. Kinetics of substrate consumption, product formation and biomass production in cell cultures. Ideal bioreactors and their modelling.

#### CHE 690 Synthesis, Characterization and Technology of Polymers

Introduction. Step-growth polymerization – Polycondensation. Free radical chain polymerizations. Free radical chain copolymerizations. Anionic polymerizations. Cationic polymerizations. Propagation-depropagation equilibria in polymerization processes. Stereospecific polymerizations. Chemical reactions on polymers. Functional polymers, block and graft copolymers, model networks. Reactors and processes for homogeneous (single-phase) reactions. Heterogeneous free radical polymerizations. Reactors and processes for heterogeneous ionic polymerizations and reaction injection molding. Reactors and processes for heterogeneous catalytic polymerization.

#### **CHE 695 Aquatic Chemistry of Heavy Metals**

This course provides chemical principles that are important to the chemistry of heavy metal ions in natural environments and in particular in natural aquifer systems. The chemical principles that can be applied in order to understand the chemical behavior and the use of chemical thermodynamics for describing reactions of metal ions under natural conditions and in the presence of naturally occurring ligands are reviewed extensively. The course includes introductory chapters on nucleogenesis, metal distribution on the geosphere and characterization of aquatic systems, and a main chapter on the chemistry of metal ions in aquatic solutions. Specific topics such as solid phase solubility, hydrolysis, chloride, carbonate and humate complexation, redox reaction, colloid formation and geochemical reactions are discussed in detail and numerous examples of analytical methods/techniques used in the determination and characterization (speciation) of metal species under environmental conditions are discussed.

#### CHE 720 Methods of Synthesis and Characterization of Inorganic Compounds

 Synthesis of Inorganic Molecules: Synthetic techniques for the synthesis of inorganic compounds in aqueous solution and organic solvents.

Synthetic techniques for the synthesis of inorganic compounds in inert atmosphere.

 Characterization of Inorganic Compounds: Characterization in the solid state with infrared, UV-Vis, X-Ray, magnetism.

Characterization in solution with Electrochemistry, UV-Vis, multinuclear NMR, EPR, magnetism, electrochemical methods.

# New Graduate Programmes (M.Sc. level)

The Department of Chemistry, acknowledging the increasing need in Cypriot society for specialized scientific personnel, has launched three new graduate programmes in the following areas:

- Master in Food Chemistry (September 2010)
- Master in Environmental Chemistry (2011)
- Master in Medicinal Chemistry (2012)

In the development of these new Master programmes the Department of Chemistry has taken into account that most of its graduates are currently employed in the fields of medicinal, environmental, and food chemistry in both the private and the public sector.

The new Master programmes aim: a) to educate experienced scientists who are already actively employed but who would like to update their knowledge in new challenging scientific fields, and, b) to offer specializations that are in demand to new scientists who are at the beginning of their careers.

## **MASTER IN FOOD CHEMISTRY**

#### **Table of Courses**

- CHE 710 Quality Assurance Methods
- CHE 711 Spectroscopic and Magnetic Analytical Techniques
- CHE 712 Chromatographic Methods of Analysis
- CHE 713 Food Biochemistry
- CHE 714 Legislation- Admissible Limits -Toxicology
- CHE 715 Mass Spectrometry
- CHE 716 Food Biotechnology
- CHE 717 Food Microbiology
- CHE 740 Literature Study or Laboratory Exercise or Industrial Exercise
- CHE 750 General Laboratory Course

# **Course Descriptions**

#### **CHE 710 Quality Assurance Methods**

The course focuses on different statistical methods and their use in lab management, errors, and their use in examining analysis results and chemometrics – statistical quality control, detection of adulteration and pollutants.

#### CHE 711 Spectroscopic and Magnetic Analytical Techniques

UV-Vis, infrared, Raman, and Nuclear Magnetic Resonance spectroscopies. Theory, instrumentation, and applications in food analysis and in studying reactions and processes in food.

#### CHE 712 Chromatographic Methods of Analysis

The main purpose of this graduate course is to familiarize students with the basic concepts of separation science. In the course, we will examine a number of chromatographic separation methods and their applications in different areas of industry, food science, etc. We will also examine the different sample pre-treatment methods.

#### **CHE 713 Food Biochemistry**

Application of biotechnological techniques in food production and processing. Study of nutritional (lipids, proteins, hydrocarbons, vitamins) and aromatic compounds, their interactions and metabolism.

#### CHE 714 Legislation- Admissible Limits -Toxicology

The course covers environmental legislation, pollution control, hazardous chemicals, food legislation, toxicology, environmental and food toxicology, food treatment and conservation.

#### CHE 715 Mass Spectrometry

This course covers the micro-analytical method of mass spectrometry for the detection of traces of chemicals, with applications in organic pollutants, food contamination, and forensics.

#### **CHE 716 Food Biotechnology**

This course covers concepts of 'Food Biotechnology' and explores alternative methods for improved quality products and increased production. Lectures include: Fermentations in food production (winemaking, brewing, baking, fermented meat products, dairy products, bioethanol), use of batch and continuous bioreactors, cell immobilization, probiotics and prebiotics, genetically modified food, waste treatment in the food industry, the impact of biotechnology in the food industry and in the nutritional value of food.

#### **CHE 717 Food Microbiology**

The course studies different microorganisms, their detection and analysis, their effect on processed and unprocessed food quality and safety, food infections.

#### CHE 740 Literature Study or Laboratory Exercise or Industrial Exercise

#### **CHE 750 General Laboratory Course**

In this laboratory course advanced instrumental analysis experiments are performed, including chromatography (HPLC, GC), spectroscopy (IR, UV-vis, fluorescence, NMR, Raman), crystallography, and hyphenated techniques GC-MS, LC-MS.

#### **MASTER IN ENVIRONMENTAL CHEMISTRY**

#### **Table of Courses**

- CHE 714 Regulations/Directives-Maximum Allowable Levels Toxicology
- CHE 715 Mass Spectrometry
- CHE 740 Literature Study
- CHE 750 General Laboratory Course
- CHE 779 Heavy Metal Chemistry & Radiochemistry
- CHE 780 Atmospheric Pollutants
- CHE 781 Environmental Physical Chemistry
- CHE 782 Environmental Catalysis and Technology
- CHE 783 Hydrosphere
- CEE 582 Hazardous Waste Management

# **Course Descriptions**

#### **CHE 582 Hazardous Waste Management**

Definition and characterization of solid and hazardous waste (solid and liquid). Regulatory legislation Waste minimization and resource recovery. Chemical, physical, and biological treatment processes, thermal processes. Disposal practices. Analysis and design of systems for treatment and disposal. Landfill design and site remediation. Transportation of hazardous wastes. Life cycle analysis.

#### CHE 714 Regulations/Directives-Maximum Allowable Levels-Toxicology

See course description above.

#### **CHE 715 Mass Spectrometry**

See course description above.

#### CHE 740 Literature Study or Laboratory Exercise or Industrial Exercise

#### CHE 750 General Laboratory Course

See course description above.

#### CHE 779 Heavy Metal Chemistry & Radiochemistry

Heavy metal chemistry (d- and f-elements) in aquatic systems. Interaction of metal ions with soil/mineral surfaces and naturally occurring colloids. Nucleogenesis, radionuclide chemistry and heavy metal distribution in the geosphere. Environmental radioactivity and radiometry. Radiation dosimetry and environmental impacts of ionizing radiation.

#### **CHE 780 Atmospheric Pollutants**

The course covers atmospheric pollutants (gases and aerosols), their sources and environmental impacts. Analysis of atmospheric pollutants and air pollution control technologies are also presented and discussed.

#### **CHE 781 Environmental Physical Chemistry**

The course covers fundamental physicochemical parameters, which determine the environmental behavior of inorganic and organic pollutants such as vapour pressure, activity coefficients, hydrophobicity, distribution coefficients, etc. Also examined are: mass transport between different phases (gasliquid, liquid-solid and gas-solid), and sorption isotherms, nucleation and crystal growth and fundamentals of colloid chemistry, and methods of colloid characterisation.

#### CHE 782 Environmental Catalysis and Technology

Internal and external mass and heat transport phenomena in heterogeneous catalysis. Analysis of kinetic data of catalyzed reactions and heterogeneous catalysis techniques. Selective catalyzed reduction of NOx and catalytical techniques for air pollution control. Application of heterogeneous catalysis in energy production from biofuels.

#### CHE 783 Hydrosphere

Hydrological cycle. Natural water chemistry. Chemical processes in natural water systems. Seawater chemistry. Potable water. Water management and water treatment technologies. Water quality management.

## MASTER IN MEDICINAL CHEMISTRY

#### **Table of Courses**

- CHE 710 Laboratory Quality Assurance
- CHE 740 Literature Study
- CHE 741 Literature Study or Laboratory Exercise or Industrial Exercise
- CHE 750 General Laboratory Course
- CHE 784 Advanced Bioorganic Chemistry
- CHE 785 Advanced Bioinorganic Chemistry
- CHE 786 Computational Chemistry Methods in Pharmaceutical Sciences
- CHE 787 Pharmaceutical Technology
- CHE 788 Medicinal Biochemistry
- CHE 789 Synthetic Organic Chemistry
- CHE 792 Pharmaceutical Analysis and Bioanalytical Chemistry

# **Course Descriptions**

#### **CHE 710 Quality Assurance Methods**

The course covers the theory of various statistical methods and their application in laboratory quality assurance, in error analysis for data reporting and chemometrics – quality control, food adulteration and contamination detection.

#### CHE 740 Literature Study or Laboratory Exercise or Industrial Exercise

#### CHE 741 Literature Study or Laboratory Exercise or Industrial Exercise

#### **CHE 750 General Laboratory Course**

See course description above.

#### CHE 784 Advanced Bioorganic Chemistry

The course covers the structure and synthesis of several important biomolecules, drugs, hormones and toxins. We will also examine the stability and biological function of biomolecules and the mechanisms of their reactions.

#### CHE 785 Advanced Bioinorganic Chemistry

The course focuses on the various metals that affect organisms when they are present in excess or in shortage, on metalloproteins, their structures and their functions in biological systems.

#### CHE 786 Computational Chemistry Methods in Pharmaceutical Sciences

Overview of computational methods and their application in chemical problems. Molecular orbital theory, force-fields, semi-empirical methods and ab-initio quantum mechanical methods. QM/MM methods for studies in the condensed phase. Applications in the study of small organic molecules with biochemical reactivity, proteins, membranes and interactions between drugs and proteins. Molecular design with desired chemical / biochemical reactivity.

#### **CHE 787 Pharmaceutical Technology**

The course covers drug discovery. Stages of drug development. Mechanisms of drug stabilization and alteration. Drug delivery techniques. Drug preparation, drug additives, the industrial production of drugs and their quality control.

#### **CHE 788 Medicinal Biochemistry**

The course covers the biochemical approach to disease and its pharmaceutical treatment. Theory of receptors and mechanisms of enzyme reactions and drug metabolism.

#### CHE 789 Synthetic Organic Chemistry

Detailed design, synthesis and evaluation of drugs. Targetoriented organic synthesis. Retrosynthetic analysis. Solid-state polypeptide synthesis. Diversity-oriented synthesis.

#### CHE 792 Pharmaceutical Analysis and Bioanalytical Chemistry

The course covers analysis of proteins DNA and drugs with electrophoresis and mass spectrometry techniques. We also study the structure of function of proteins and bio-sensors.

# **Areas of Research**

Research in the Department of Chemistry focuses on the following areas:

- Chemistry of Porous Solids
- Physical Chemistry of Colloids and Interfacial Systems
- Computational Chemistry/Molecular Simulation
- Heterogeneous Catalysis/Environmental Catalysis and Technology
- Polymer Synthesis and Characterization
- Synthetic Organic Chemistry
- Synthetic Inorganic Chemistry
- Materials Chemistry
- Analytical and Environmental Chemistry and Radiochemistry
- Instrumental Analysis
- Molecular Spectroscopy

Chemistry faculty members participate in international research projects and collaborate with several foreign universities and research centers. Members of the Chemistry Department have participated in the past in European Research Programmes. Since 1998, with the participation of Cyprus in the 5th and 6th Framework Programmes of the European Union, the participation of the Chemistry Department in European projects has grown considerably, particularly in the area of Environmental Technology, while increased participation is anticipated in the future. The following list contains representative examples of international research Programmes in which researchers of the Department of Chemistry have collaborated in the past, or are currently participating:

- 1. Initiative Avicenne (European Union)
- 2. Human Capital and Mobility (European Union)
- 3. Training and Mobility of Researchers (European Union)
- 4. Advanced Stimuli Responsive Materials Projects (JHPC/NEDO, Japan)
- 5. Research Training Networks (5th Framework Programme)
- 6. Environment and Sustainable Development (5th Framework Programme)
- 7. Quality of Life (5th Framework Programme)
- 8. Growth (5th Framework Programme, European Union)
- 9. Energy (6th Framework Programme, European Union)

10. Interreg III (7th Framework Programme, European Union)

A number of faculty members in the Department participate in the Greece-Cyprus and Romania-Cyprus Bilateral Research Programmes and in the Programmes of the Cyprus Research Promotion Foundation (including PENEK Programmes). As a result of the applied research carried out in the Department of Chemistry, three patents have already been issued (one European and two USA) and two others have been submitted (European Patent Office).

# **Research Laboratory Equipment**

The Chemistry postgraduate students conduct their research work in laboratories established by Chemistry faculty members covering the above-mentioned research topics. The equipment in these research laboratories, valued at millions of euros, has been purchased mainly through the University budget (internal funding). In recent years, several pieces of equipment have been purchased through European and Cypriot Research Programmes awarded to the researchers of the Department.

The most important research equipment of the Department of Chemistry is summarized below:

- 300 MHz Avance Bruker NMR Spectrometer
- Xcalibur III Oxford Single-crystal X-ray Diffractometer
- Shimadzu powder X-ray Diffractometer
- Q100 TA Differential Scanning Calorimeter (DSC)
- CHNS-O Eurovector Elemental Analyser
- Princeton Electrochemistry Equipment
- MK I Sherwood Magnetic Balance
- KSV 3000 Langmuir-Blodgett apparatus
- Shimadzu Thermal Gravimetric Analyser (TGA)
- Waters HPLC system with dual pump and UV detector
- Shimadzu FTIR Model IR Prestige-21 with NIR kit and Pike Miracle ATR
- Nox, CO2, CO, H2 and CH4 Infrared Gas Analyzers
- BET Micromeritics Apparatus
- PicoPlus Molecular Imaging (Agilent) Atomic Force Microscope
- Nanosecond Resonance Raman/TRRR setup
- UV Vis NIR (Shimadzu UV-3600 UV-VIS-NIR)
- Computational Chemistry Cluster (PQS) QuantumCube CPU (64-bit Opteron Processors)
- Alpha/beta Radioactivity Proportional Counter

# **Research Interests of the Academic Staff**

## Nikolaos E. Chronakis Assistant Professor

His research is focused on:

- a) The tether-directed remote functionalization of fullerene C60. This method is used for the synthesis, characterization and the development of new C60-cyclophane type bis- and trisadducts of [60] fullerene for the construction of functional supramolecular assemblies. Extension of this method can give facile access to enantiomerically pure Bingel multiadducts with fascinating optoelectronic properties and strongly antioxidant behaviour.
- b) The synthesis of chiral [60]fullerene helical polymers and fullerene-porphyrin conjugates for Photoinduced Electron Transfer.
- c) The synthesis and characterization of macrocyclic oligomalonates. This family of molecules show pronounced crystallizability and arrange into columnar stacks, forming narrow channels and pores extended through the entire single crystal. Such systems promise to form columnar assemblies featuring pores for molecular recognition and transport.

# Angelos M. Efstathiou Professor

His research is focused on the field of Heterogeneous Catalysis as a means for solving critical environmental problems (e.g. air and water pollution), problems related to the production of valuable chemical products, and the effective utilization of significant energy-related sources (e.g., natural gas, biomass) towards H2 production. To achieve these goals, new materialscatalysts must be developed and tested or existing ones improved. The design of new catalytic materials requires fundamental knowledge of the relationships between physicochemical and catalytic (activity/selectivity) surface properties, knowledge of the reaction mechanism and the mechanism of catalyst deactivation.

The main instrumentation that is used in the Heterogeneous Catalysis laboratory at the University of Cyprus for the above described research consists of specially designed gas flowsystems that allow steady-state and transient catalytic experiments to be conducted, quadrupole mass spectrometers, a gas chromatograph, CO, CO<sub>2</sub>, NOx, N<sub>2</sub>O and H<sub>2</sub> gas analyzers, in-situ DRIFTS, UV-vis / DRS and Raman flow-cells. Several other catalyst characterization techniques are used in collaboration with other laboratories abroad (e.g., XPS, SEM, HRTEM, Mössbauer, Raman, Photoluminescence). Pioneering research has also been undertaken regarding industrial NOx control by the use of H2 in the low-temperature range of 120-2000C; this has resulted in one USA and three European patents as well as a License Agreement with LINDE ENGINEERING AG for exploitation of these patents.

#### Savvas N. Georgiades

Lecturer

His research interests encompass the areas of Synthetic, Bioorganic and Medicinal Chemistry. More specifically, he is looking into novel and efficient ways for synthetically accessing biologically active small molecules (including natural products), which can be elaborated into therapeutics or chemical probes for the study of biological systems.

One area of focus is the synthesis and investigation of compounds with the potential to act as spatial and temporal modulators of critical cellular signal transduction pathways, for example, the PI3K/PTEN/Akt/FOXO pathway, which provide promise for development of anti-cancer, anti-diabetic or neuroprotective therapies.

Another research focus is the development of new chemical agents that act as stabilizers of DNA G-quadruplexes in human guanine-rich single-stranded DNA sequences, such as the ones from the telomeres or some oncogene-promoter regions. In either case, quadruplex formation within the sequence has shown potential for inhibition of enzymes involved in the progression of cancer.

Various synthetic approaches are used in the lab to carry out the above activities, including conventional solution- and solid-phase synthesis, as well as dynamic and combinatorial.

#### • Sophia C. Hayes

#### Assistant Professor

Her research interests extend in different fields but have as a common denominator an interest in understanding the basic photochemical & photophysical behavior of the system under study. Current research focuses on the following topics:

- a) Biophysics of proteins that are involved in a variety of illnesses, and especially the mechanisms and dynamics of their folding process
- b) Photochemistry of conjugate polymers for use in optoelectronic devices
- c) Photochemistry of environmentally important molecules such as nitryl chlorides
- d) Proton-coupled electron transfer mechanism in metal complexes

#### • Constantina P. Kapnissi-Christodoulou Assistant Professor

Her research interests include the following:

• Development of electrophoretic, chromatographic and electrochromatographic methods for improved achiral and chiral separations of various classes of analytes

- Use of the hyphenated technique CE-MS for the separation, detection and guantitation of pharmaceutical compounds
- · Application of the optimum separation conditions in biological, natural and food samples
- · Determination of the most effective sample pre-treatment methods in regards to recovery, time, difficulty and reproducibility
- Imaging of individual amyloid plagues for the diagnosis of Alzheimer's disease using near-field third-harmonicgeneration (THG) microscopy

# Anastasios D. Keramidas

#### Associate Professor

Basic research of transition metal complexes. Bioinorganic chemistry of vanadium, chromium, manganese, iron, molybdenum and selenium, including: synthesis and characterization of model transition metal compounds for the active centre of biomolecules, synthesis and characterization of metal compounds with pharmaceutical properties such as antidiabetic vanadium molecules, and organic selenium compounds with anticancer and antioxidant properties.

Supramolecular chemistry of metal-organic compounds, including: synthesis and characterization of multinuclear metal complexes with defined shape, with Host-Guest properties and novel magnetic and optical properties, synthesis and characterization of supramolecular compounds formed from lipids of transition metal complexes.

# • Panayiotis A. Koutentis

## Associate Professor

Discovery and development of novel heterocyclic chemistry. Sulfur-nitrogen rich heterocycles 1,2,3-dithiazoles and 1,2,6thiadiazines are under investigation.

Novel conjugated organic polymers based on 1,2,6thiadiazines; analogues of poly(pyrroles) and poly(thiophenes).

Design, synthesis and characterization of electronically unusual compounds; organic neutral radicals, diradicals, and zwitterion radicals.

# Epameinondas Leontidis

#### Professor

In the area of Physical Chemistry of Colloids and Interfaces, the research emphasis is on using surfactant or polymer/surfactant systems for the production of composite organic/inorganic materials with interesting electrical, optical, etc., properties. The sol-gel method is used to produce novel silicate materials that are used for water purification (emphasis placed in the removal of boron). The Langmuir-Blodgett method is used to study the surface properties of metallorganic surfactants. Finally, the influence of electrolytes in lipid systems is examined experimentally and theoretically. In the area of Computational Chemistry, computations using Molecular Mechanics and Dynamics are carried out, with the goal of modelling the structure of electrolyte solutions in the vicinity of surfaces and the salting-out effect of organic compounds.

The group currently collaborates with the Department of Materials, ETH (Zurich, Switzerland), with the French Nuclear Research Centre in Marcoule (France), with the Max Planck Institute for Colloids (Golm, Germany), with the University of Graz (Austria), the University of Granada and the Complutense University of Madrid (Spain), with the University of Patras and the National Research Institute (Greece), and with the Department of Microscopy of the Cyprus Institute of Genetics.

#### Athanassios Nicolaides Associate Professor

His research interests lie: (a) in the area of organic reactive intermediates with an emphasis on pyramidalized alkenes, carbenes and nitrenes and; (b) in the application of guantum chemical computations to various organic and environmental chemistry problems. He is working in collaboration with researchers in Italy (ISOF-Biofreeradicals) within the COST framework (Action CM0603) to examine the mechanism of oxidation of methionine and other organic substrates. In the area of pyramidalized alkenes his research efforts are directed towards the synthesis of new pyramidalized alkenes and organometallic derivatives of such species with the aim of synthesizing complex polycyclic organic compounds with well-defined rigid geometries.

#### Ioannis Pashalidis

#### Associate Professor

Study of the chemical behavior of f element ions in natural aquifer systems and the application of experimental methods for the analysis of adsorbed species on surfaces and colloids. Aqueous nuclear chemistry of actinide ions and environmental alpha radiometry. Study of the interaction of f element ions with chelating agents of clinical use in order to determine and characterize the formed species, assess their behavior under physiological conditions and evaluate their possible use in the decorporation of radionuclides from contaminated persons.

## Costas S. Patrickios

#### Professor

Synthesis, characterization, modelling and applications of functional polymers.

Research is focused on the design and preparation of polymers with improved properties and applications in biotechnology, medicine, optoelectronics, colloidal and environmental chemistry. These polymers are obtained with the polymerization of the appropriate monomer or monomers bearing functional groups with the desired properties. Such
properties are the ionic charge (the resulting polymers can be used in protein separation), the nucleophilic character (synthetic polymers mimicking enzymes), the high refractive index (optoelectronic applications), the amphiphilic character (detergency), the very low surface tension (compatibility with the environmentally friendly supercritical carbon dioxide). Other central characteristics of the present polymers are the precise molecular weight (narrow size distribution), the welldefined composition (in case of copolymers) and the controlled architecture (e.g., linear polymers, star polymers or polymer networks; block or random copolymers). These characteristics, which allow the derivation of accurate structure-property relationships, are afforded with the use of "living" synthetic techniques, such as anionic polymerization and group transfer polymerization (GTP), where all polymers grow uniformly during their preparation. The molecular weight and composition of the polymers are characterized using gel permeation chromatography (GPC) and nuclear magnetic resonance (NMR) spectroscopy, respectively. Finally, thermodynamic theories are applied for the prediction of polymer behavior upon aggregation in selective solvents and upon adsorption onto surfaces.

#### • Eftychia Pinakoulaki

#### Lecturer

Her research programme addresses a wide range of fundamental problems in Biophysical/Bioanalytical Chemistry. Fourier transform infrared (FTIR), Attenuated Total Reflection FTIR, time-resolved step-scan FTIR, and resonance Raman spectrocopies are the tools for the investigation of basic mechanisms in Chemistry and Biochemistry.

#### Current projects include:

- Oxygen sensor proteins *EcDOS* and *Bs*HemAT: Dynamics and ligand discrimination mechanisms
- Dynamics and catalytic mechanism of Aldoxime dehydratase
- Ligand binding properties and dynamics of thermophilic enzymes
- Nitric oxide activation by NOR and heme-copper cbb<sub>3</sub>
- Applications of FTIR spectroscopy in Food Chemistry and Biochemistry

# Anastasios J. Tasiopoulos Assistant Professor

Synthesis and Physicochemical characterization of polynuclear metal complexes with potential applications in both Bioinorganic Chemistry, as models for the study of related biomolecules and Materials Science, since below a critical temperature they can function as magnets and are referred to as Single Molecule Magnets (SMMs).

# Charis R. Theocharis Professor

The research interests of his group are: the study of adsorption on porous solids, the surface properties of zeolites, ALPOs, and the reactivity of their surfaces with gases and vapours. Surface properties of the oxides and hydroxides of calcium and magnesium. Chemistry of organic solids.

# **Contact Details**

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http://www.ucy.ac.cy/chem-en

# **Computer Science**

The Department of Computer Science attaches major importance to research, since it is through research that it accomplishes one of its foremost missions. while, on the other hand, research enables computer science to contribute to local industry and, more generally, to Cypriot society at large. Beyond the foundational topics that concern it, computer science also aims at developing methods that will form the basis for the effective solution of "real" problems from every other discipline, with the ultimate goal of improving the *quality of life. Moreover, our Department* also attaches great significance to applied research and, more specifically, to research which, as far as possible, will be directly useful to local industry.

The Department of Computer Science, from the academic year 2009-2010, offers the following four master's programmes:

- Master in Computer Science (MCS)
- Master in Internet Computing (MIC)
- Master in Intelligent Systems (MIntS)
- Professional Master in Advanced
   Information Technologies (PM)

The Department offers postgraduate programmes at the Ph.D. level in different specialisations of Computer Science.

# Research

The general research areas of the Department include: Parallel and Distributed Systems and Computation, Fixed and Wireless High-Speed Networks, Internet Technologies, Concurrent Systems, Mobile Computing, Parallel Processing, Intelligent Systems, Computer Architecture, Open and Distance Learning, Medical Informatics and Telemedicine, and Multimedia Systems. Part of this work is financed through European research projects, the Cyprus Foundation for the Promotion of Research and local industry.

Over the last years, our Department has developed intensive activities around the general theme of the Information Society. On this theme, four research programmes related to Telemedicine, Telenursing, and Intermediary Infrastructures for Web Services have already started with local and European funding. In parallel, the Department has helped to shape national strategy and policy on issues related to the Information Society, and has also alerted local industry and organisations to the development perspectives of Cyprus in relation to the same themes.

In the last eight years the Department has secured its participation in more than 140 research programmes that are funded by the European Union, most of them within the Sixth Framework Programme "Information Society Technologies." This budget exceeds twelve million Euros and has assisted in the employment of new researchers and postgraduate students.

In recent years, the Department of Computer Science has co-organised a number of international conferences, including the following:

- EUGridPMA Meeting, January 2009, Nicosia
- 4th International Conference on High Performance and Embedded Architecture and Compilers (HiPEAG 2009), 25-28 January 2009, Paphos
- 2nd Workshop for Intelligent Signal Processing Algorithms and Systems, July 2009, Nicosia
- 3rd International Symposium on Intelligent Distributed Computing, 13-14 October 2009, Ayia Napa
- 2nd International Symposium on Algorithmic Game Theory (SAGT 2009), 18-20 October 2009, Paphos
- 9th International Conference on Information Technology and Applications in Biomedicine, 5-7 November 2009, Larnaca
- 4th International Conference on Communications and Signal Processing, 17-19 March 2010, Limassol
- European Joint Conferences on Theory and Practice of Software (ETAPS 2010), 20-28 March 2010, Paphos

- 9th Hellenic Data Management Symposium (HDMS 2010), 30 June-2 July 2010, Ayia Napa
- 3rd Cyprus Workshop on Signal Processing and Informatics, July 2010, Nicosia
- 6th IFIP Conference on Artificial Intelligence Applications
   & Innovations (AIAI 2010), 6-7 October 2010, Larnaca
- 9th International Neural Coding Workshop (NC 2010), 29 October-3 November 2010, Limassol
- 8th European Conference on Web Services (ECOWS 2010), 1-3 December 2010, Ayia Napa
- 11th International Conference on Web Engineering (ICWE 2011), 20-26 April 2011, Paphos
- ICT 2011 International Conference on Telecommunications, 8-11 May 2011, Ayia Napa
- 4th Cyprus Workshop on Signal Processing and Informatics, 14 July 2011, Nicosia
- 11th IEEE International Conference on Computer and Information Technology (CIT 2011) and the 11th IEEE International Conference on Scalable Computing and Communications (ScalCom 2011), 31 August - 2 September 2011, Paphos
- 9th International Conference on Service Oriented Computing (ICSOC 2011), 5-8 December 2011, Paphos

# Computer Laboratories and Research Facilities

In early 2003 the Department moved to buildings located at the newly constructed University campus, which offer ample space for offices as well as for research and teaching laboratories.

In total, the Department houses six teaching laboratories, including a digital lab and a walk-in lab, with more than 200 work stations. Ten research laboratories accommodate approximately 40 postgraduate students and research associates who participate in the various research projects of the Department. The number of research labs is expected to grow to 20 in the next few years.

The computer equipment of the Department includes modern multiprocessor servers that run under AIX, Solaris and Linux, connected through high-speed Gbit network. A state-of-the-art wireless local area network allows access to the computer systems of the Department from anywhere on campus.

# **M.Sc. Programmes**

To be admitted to a master's programme, a candidate must possess a first degree in Computer Science or a related subject from an accredited university with an overall grade of "Very Good". Any relevant industrial experience may be considered as an additional advantage.

# MASTER IN COMPUTER SCIENCE

The Master's Programme in Computer Science is designed primarily for Computer Science and other science-related graduates who seek to develop research skills and enhance their knowledge in advanced areas of Computer Science. Students who attend this programme may pursue a Ph.D. degree after their graduation.

The completion of the programme requires 90 ECTS, and the duration of studies should be at least three semesters. These 90 credits correspond to eight courses and a Master's thesis. More specifically:

- Seven postgraduate courses of 8 ECTS each (any seven from the postgraduate course list)
- One postgraduate course of 4 ECTS (CS 671 Research Methodologies in Computer Science)
- Master's thesis worth of 30 ECTS

# **MASTER IN INTERNET COMPUTING**

The Master Programme in Intelligent Systems is designed primarily for Computer Science and other science-related graduates who seek to deepen their knowledge on subjects like Computer Networks, Distributed Systems and the Internet to develop research skills in these subjects and, potentially, pursue a doctoral degree after their graduation.

The completion of the programme requires 90 ECTS and study duration of at least three semesters. These 90 credits correspond to eight courses and a Master's thesis. More specifically:

- Seven postgraduate courses of 8 ECTS, out of which 4 should be related to the area of Internet Computing (identified as such in the Table of Specialization Courses and in the course descriptions)
- One postgraduate course of 4 ECTS (CS 671 Research Methodologies in Computer Science)
- Master thesis worth of 30 ECTS (the topic of the thesis must be related to the scope of the programme: Internet, Computer Networks, Distributed Computing, etc.)

# **MASTER IN INTELLIGENT SYSTEMS**

The Master in Intelligent Systems is designed for Computer Science and other science-related graduates who seek to deepen their knowledge in areas like Artificial Intelligence and Computational and Data Mining Systems, to develop research skills in these subjects and, potentially, follow doctoral studies after their graduation.

The completion of the program requires 90 ECTS and the duration of studies should be at least three semesters.

These 90 credits correspond to eight courses and a thesis. More specifically:

- Seven postgraduate courses of 8 ECTS, out of which 4 must be relevant to the area of Intelligent Systems (identified as such in the Table of Specialization Courses and in the course descriptions)
- One postgraduate course of 4 ECTS (EPL 671 Research Methodologies in Computer Science)
- Master's thesis worth of 30 ECTS (the topic of the thesis must be related to the scope of the programme: Artificial Intelligence, Computational Knowledge Mining Systems, etc.)

## MASTER IN ADVANCED INFORMATION TECHNOLOGIES (Professional)

The aim of the Professional Master in Advanced Information Technologies is to help Information Technology professionals to extend and update their knowledge in Advanced Computer Technologies and to acquire up-todate know-how in subjects related to the national Information Technology industry like Software Engineering, the Internet, and Intelligent Systems.

The completion of the course requires 75 ECTS and the duration of studies must be at least four semesters. In particular:

- Seven postgraduate courses of 8 ECTS, out of which 4 should be related to the programme's scope (identified as such in the Table of Specialization Courses and in the course descriptions)
- One postgraduate course of 4 ECTS (EPL 672 Seminar on Professional Computer Science Practices)
- Master's thesis worth of 15 ECTS, which can be replaced with two extra postgraduate courses

The needs of employees and professionals in the Information Technology industry will be considered during the scheduling of courses (afternoon and evening courses and three-hour meetings).

# **Course Descriptions**

Unless otherwise stated, all courses are credited with 8 ECTS.

#### CS 601 Distributed Systems

Specialisation Course for MIC

Restricted Choice for MCS, MIntS, PM

Basic concepts and principles of distributed systems. Communication, processes and synchronization. Faults. Naming. Distributed file systems and distributed operating systems. Security and cryptography in distributed systems. Distributed shared memory and its consistency. Distributed algorithms and distributed programming. Design and development of applications in distributed environments. Case-studies of specific distributed systems. Practical exposition with programming project or programming exercises.

#### CS 602 Foundations of Internet Technologies

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

This course examines key issues and principles of internetcentric infrastructures and systems. Topics include web and media streaming protocols, web traffic measurement and characterization, web caching and content delivery networks, peer-to-peer networks and publish/subscribe systems. Related topics from recent research literature will also be examined.

#### CS 603 Advanced Software Engineering

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Topics in Component-Based Software: Principles of development of component-based systems based on component-based software. Modelling techniques. Software architectures. Coordination programming. Middleware platforms for the development of systems. Software composition. Elements of distributed programming. Configuration management. Advanced topics in Software Engineering: Requirements in Engineering Processes. Real-time Software Design. Design with Reuse. User Interface Design. Software Change.

#### CS 604 Artificial Intelligence

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Introduction to Artificial Intelligence. Intelligent Agents. Searching. Constraint Satisfaction. Knowledge Representation and Extraction. Temporal Representation. Introduction to Machine Learning. Introduction to Artificial Neural Networks. Single layer and Multi-layer Perceptrons. Radial-basis Function Networks. Self-organizing Maps. Reinforcement Learning. Genetic Algorithms. Fuzzy Logic.

#### CS 605 Advanced Computer Architecture I

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Performance evaluation and comparison, as well as benchmarking programmes; Basic microarchitecture concepts of modern processors; Pipelining, instruction-level parallelism, prediction, speculation, memory hierarchy, and static/dynamic instruction scheduling; Examples of modern processors; Current research projects in the area of computer architecture.

#### CS 606 Computer Networks and the Internet

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

Introduction to Internet and Networking Technologies. TCP/IP suite of protocols, Quality of Service (QoS), New Networking Architectures. Protocols and Standards (e.g., DiffServ, IPv6, MPLS). Network Performance Evaluation (e.g., queuing theory, and simulation tools). Traffic Modelling and Traffic Engineering. Congestion Control and Resource Allocation. Network Design and Optimization.

#### **CS 607 Visual Computing**

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Binary image processing, intensity transformations, the discrete Fourier transform, linear and nonlinear filtering, image compression, image analysis, basic principles of video processing. Basic principles of 3D graphics: polygonal representations, transformations, local and world coordinate system, scene graph, camera and field of view specification, orthographic and perspective projection, clipping in 2D & 3D, polygon rasterization, back face elimination, visible surface determination with the Z-byffer method and Binary Space Partitioning Trees, local illumination - flat, Phong & Gouraud shading, real-time graphics, applications.

#### CS 646 Advanced Topics in Databases

Specialisation Course for MCS Restricted Choice for MIC, MIntS, PM

Fundamentals of Modern Database Systems including topics in Indexing, Query Optimization and Transaction Processing. Fundamentals of Distributed Database Management Systems, including algorithms for query optimization and transaction processing. Semi-structured data management (XML, XPATH and XQUERY) and introductory concepts in unstructured data management. Spatial data management and specialized index structures (e.g., R-Trees, Grid Files), temporal data management and specialized index structures (e.g., MVB-Trees), other advanced topics including: Data Warehouses and OLAP, Object-Oriented Databases and Languages (ODMG, ODL και OQL), Object-Relational Databases (ORDBMS), Data Stream Management Systems (DSMS) and topics in Database Security.

#### CS 651 Data Management for Mobile Computing

Specialisation Course for MIC, PM

### Restricted Choice for MCS, MIntS

Introduction (wireless technologies, architectures, applications, limitations). Software architectures for mobile computing. Theoretical models for mobile computing. Support for information recovery. Information Management. Dynamic redirection of computations. Indicative applications and open problems.

#### CS 652 E-Commerce

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

Mobile E-business. Access security. Cryptographic security. Electronic payments. Massive personalization. Intelligent agents. Transaction management. Strategic analysis. Digital goods. Strategies in E-Commerce.

#### CS 653 Computer Games Software Technology

Specialisation Course for MIntS, PM

#### Restricted Choice for MIC, MCS

Game structure and design, computer animation, movement and deformation, interactive cameras, visual simulation of physically-based models, special effects using particle systems, collision detection, articulated characters, navigation and other behavioural models for autonomous characters.

#### CS 654 Learning Technologies and Open and Distance Learning

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

Learning Technologies and Distance Learning Systems, Learning theories and Distance Learning, systems for developing learning material, Standards and quality control of learning material, Courses and educational software, Exploration of active learning techniques, Research issues in Distance Learning.

#### CS 655 Advanced Computer Architecture II

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Support for parallel programme execution, parallel architectures, different types of multiprocessor interconnection networks, compilation of parallel programmes, and performance analysis of various parallel applications.

#### CS 656 Computer Graphics: Modelling and Realism

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Modelling, parametric and implicit surfaces, camera specification, projections of primitives. Graphics Pipeline. Local and global illumination, shadows, ray tracing and radiosity. Real-time rendering of large environments. Acceleration techniques.

#### CS 657 Wireless Computer Networks

Specialisation Course for MIC Restricted Choice for MCS, MIntS, PM

Wireless environment, Interference and other problems in wireless communications, basic principles of cellular wireless networks and wireless local area networks. New architectures and technologies of wireless networks and wireless communication (e.g., ad-hoc and sensor networks). Resource management techniques, Next Generation wireless networks, design and planning of wireless networks, protocols for wireless and mobile networks.

#### CS 658 Digital Video Processing

Specialisation Course for MIntS Restricted Choice for MCS, PM, MIC

Basics of analog and digital video. Frequency domain analysis of video signals, spatial and temporal frequency response of the human visual system. Scene, camera, and motion modelling, 3D motion and projected 2D motion, models for typical camera/object motions. 2D motion estimation. Basic compression techniques. Waveform-based coding. Video compression standards (H.261 and H.263, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21).

#### CS 659 Design on Embedded Systems

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

A review of embedded system processors. Organization of embedded systems: CPUs, RAM, ROM, buses, peripherals, sensors, actuators, interfacing. Examples of widely used processors buses and peripherals. Interfacing with peripherals: sampling, interrupts, advantages and disadvantages. Process distribution between hardware and software. Tools for the development of embedded systems and real-time operating systems. Hands-on experience with the development and implementation of embedded systems.

#### CS 660 Information Retrieval and Search Engines

Specialisation Course for MIC, MIntS Restricted Choice for MCS, PM

Introduction to Information Retrieval. Boolean Retrieval. Text encoding: tokenisation, stemming, lemmatisation, stop words, phrases. Dictionaries and Tolerant retrieval. Index Construction and Compression. Scoring and Term Weighting. Vector Space Retrieval. Evaluation in information retrieval. Relevance feedback/query expansion. Text classification and Naive Bayes. Vector Space Classification. Flat and Hierarchical Clustering. Web Search Basics. Web crawling and indexes. Link Analysis.

#### CS 661 Multi-Agent Systems

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Intelligent Agents, Principles of multi-agent systems. Interfaces and collaboration. Communication protocols. Multi-agent organisations. Task distribution and coordination. Applications.

#### CS 662 Machine Learning and Data Mining

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Data Warehouse and OLAP Technology for Data Mining. Data Processing. Data Mining Primitives, Languages, and System Architectures. Concept Description: Characterization and Comparison. Mining Association Rules in Large Databases. Classification and Prediction. Cluster Analysis. Mining Complex Types of Data. Applications and Trends in Data Mining.

#### CS 663 Computational Logic

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Historical introduction. Review of Classical Logic. Abduction and induction. Knowledge representation and knowledge. Reasoning about Actions and Change. Application of Computational Logic. Declarative Programming. Autonomous Agents. Knowledge-based Robotics. Intelligent Information Integration.

#### CS 664 System Analysis and Verification

Restricted Choice for MCS, MIC, MIntS, PM

Formal methods for system specification and analysis. Concurrent systems and interleaving and partial-order semantics. Transition systems and Kripke structures. Temporal logic (linear and branching). Automatic verification and modelchecking. Process algebras: syntax, semantics, equivalence relations and axiom systems. Real-time system analysis (timed automata, timed process algebras and timed temporal logic). The tools SPIN and Concurrency Workbench.

#### CS 665 Constraint Solving Methods

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Review of basic concepts of Finite Domain Constraint Satisfaction. Advanced consistency techniques for binary and non-binary problems. Constraint Satisfaction and Propositional Logic: Modern algorithms and problem reduction techniques. Constraint Satisfaction and Logic Programming. Logic Programming with negation and the Smodels and DLV systems. Relation between Finite Domains and Propositional Logic techniques. Implied Constraints. The Planning problem and Constraint Satisfaction. Temporal Constraint Satisfaction. The CHIP Constraint Programming Language. Modelling in CHIP.

#### CS 666 Computational Bioscience

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

General framework and systems of Abductive and Inductive Logic Programming. Application of methods from the framework to problems and topics of Molecular Biology such as Gene Pathways, Signal and Regulating Networks, Metabolic Networks and Gene Therapy.

#### CS 667 Neuroinformatics

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Neuroinformatics or Computational Neuroscience is an emerging and dynamically developing field aiming to elucidate the principles of information processing by the nervous system as well as applying information technology to the processing of neuroscientific data. This course aims to develop and apply computational methods for studying brain and behaviour as well as understanding the dynamics of the conscious mind. Basic biophysics of single neurons. Conductance-based neuron models: the generation of action potentials and the Hodgkin and Huxley equations, dendritic trees, the propagation of action potentials, cable theory, compartmental models. Modelling synapses. Spiking neuron models and response variability: leaky integrator and integrate-and-fire type neuron models, spike time variability. Neuronal coding. Synaptic plasticity. Bottom-up/top-down modelling of the brain. Modelling consciousness.

#### CS 668 Mechanical Vision (8 ECTS)

Specialisation Course for PM

Restricted Choice for MCS, MIC, MIntS

Basic concepts and methodologies relating to the subject of Computer Vision. Image information, image processing, feature extraction. Image segmentation, clustering, multipleimage processing, case studies.

#### CS 671 Research Methodologies in Computer Science (4 ECTS)

Compulsory Course for MCS, MIC, MIntS

Seminars/lectures in Computer Science. Research literature reviewing. Presentation of technical study.

#### CS 672 Computer Science Professional Practices Seminar (4 ECTS)

Compulsory Course for PM

This module includes: (a) A series of a two-hour introductory lectures regarding the basic professional practices, for example the use of the library and of digital libraries, the searching for and studying of relevant references, the review of a technical subject or subfield, the review of scientific texts, the writing and substantiation of technical texts, the preparation of technical lectures, etc. (b) Seminars offered by academics of the Computer Science Department and visiting academics from other universities, research centers and industry.

#### CS 673 Algorithmic Game Theory

Specialisation Course for MIC Restricted Choice for MCS, MIntS, PM

Strategic games. Pure and mixed strategies, utilities, best responses, equilibrium concepts. Pure and mixed Nash equilibria, their refinements and generalisations. Classical existence theorems of equilibria and their algorithmic aspects. Algorithms and complexity of equilibrium searching. The complexity classes PLS and PPAD and their relation to equilibrium computation. Bimatrix games and algorithms to compute their approximate equilibria. The Price of Anarchy and its variants. Analysis of the Price of Anarchy for both general and specific games (e.g., selfish routing games, congestion games, security games). Applications to realistic cases (e.g., social networks, Internet formation).

#### CS 674 Network and System Security

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

Introduction to security threats and attacks. Cryptographic and cryptanalysis techniques. Key exchange management (PKI). Network and Internet security protocols (IPSec, SSL/TLS). Identification and authentication standards (Kerberos, AAA). System security (Firewalls, IDS). Specific threats on end-systems (viruses, worms, trojan horses, stack overflow, rootkits). Identification of security vulnerabilities in software and operating systems. Checking of networks and applications for vulnerabilities, introduction to computer systems forensics. Security policies. Security management, ethical and legal issues in system security.

#### CS 675 Web Services and Service Oriented Computing

Specialisation Course for MIC, PM Restricted Choice for MCS, MIntS

Introductory concepts. Relationship and difference between services and other related formalisms (distributed systems, component-based systems, etc). Fundamental architectures and protocols (SOAP, WSDL, UDDI). Fundamental development platforms (J2EE, NET, etc). Problems and challenges. Information modelling and representation (ontologies, RDF and OWL protocols, etc). Cooperative Information Systems and service composition.

#### CS 676 Software Architectures

Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Introductory concepts. Fundamental categories of software architectures. Patterns and contracts. Architecture Description

Languages. Techniques for modeling and analysis of software architectures. Fundamental principles of component-based systems. Code generation.

#### CS 677 Component-Based Systems

#### Specialisation Course for PM Restricted Choice for MCS, MIC, MIntS

Introductory concepts. The notion of components. The use of components in the traditional software life cycle. Design Patterns. Middleware platforms. Reusability and classification of components. Composition and integration of component-based systems. Quality assurance and maintenance of component-based systems.

#### CS 678 Temporal Information Systems in Medicine

Specialisation Course for MIntS Restricted Choice for MCS, MIC, PM

Information Systems for storing, managing, querying and supporting different inference tasks on time-oriented clinical data. The significance of time in medicine. Modelling and reasoning with time (modelling time and modelling temporal entities). Requirements, ontologies and temporal reasoning models. General theories of time in relation to medicine. Temporal constraints. Temporal databases and their extension for clinical data. Temporal abstraction of medical data (types of abstraction, temporal monitoring). Time and clinical diagnosis (diagnostic concepts, applications, abductive reasoning based on time-objects, temporal constraints). Automated support in planning therapies (modelling clinical guidelines and protocols). Further research challenges.

#### CS 679 Electronic Health (eHealth)

Specialisation Course for MIntS

Restricted Choice for MCS, MIC, PM

Information retrieval from medical databases, data, medical records, live signals, and data mining using intelligent techniques. Study of application systems that are currently in use for managing medical data and suggest ways for better handling and building, medical knowledge bases, electronic health record, and decision support systems for the medical profession.

#### CS 699 Special Topics in Computer Science

Restricted Choice for MCS, MIC, MIntS, PM

The content of the course is according to the specific topic.

#### Ph.D. Programme

Apart from the general requirements of the University of Cyprus for the acquisition of a Ph.D. degree, the Department expects Ph.D. candidates to publish their research results in the proceedings of international conferences and, possibly, academic journals.

A Ph.D. programme comprises the completion of postgraduate courses amounting to at least 60 ECTS (holding a relevant M.Sc. Degree may result in full or partial satisfaction of this requirement), success in a comprehensive examination, acceptance of a research proposal and, finally,

the submission of an original thesis which represents a substantial contribution to the relevant field of knowledge.

Admission to a Ph.D. programme requires high academic qualifications in Computer Science and the Department's ability to supervise the research topic that is of interest to the students.

# **Research Interests of the Academic Staff**

# Chris Christodoulou Associate Professor

Computational and Cognitive Neuroscience, Artificial Neural Networks, Machine Learning, Neuroinformatics and Bioinformatics.

#### Yiorgos Chrysanthou

#### Associate Professor

Computer Graphics, Virtual and Augmented Reality.

#### Marios D. Dikaiakos

#### Associate Professor

Network Centric Computing, with an emphasis on Grid Computing, Web Technologies, Mobile Computing.

#### Yannis Dimopoulos

#### Associate Professor

Artificial Intelligence, Knowledge Representation and Reasoning, Al planning, Non-monotonic Reasoning, Constraint Satisfaction.

#### Paraskevas Evripidou

#### Professor

Parallel Processing and Computer Architecture, Mobile and Pervasive Computing.

#### Chryssis Georgiou

#### Assistant Professor

Distributed and Parallel Computing (Theory and Practice), Fault– Tolerance and Dependability, Algorithms and Complexity, Dynamic Computing Environments.

#### Antonis Kakas

#### Professor

Artificial Intelligence, Knowledge Representation and Reasoning, Cognitive Agents, Machine Learning, Computational Bioscience.

#### Georgia Kapitsaki

#### Lecturer

Mobile Internet and Context-aware Services, Model-driven Engineering, Aspect-oriented Programming, Web 2.0 Technologies and Privacy Protection.

#### Elpida Keravnou-Papailiou

#### Professor

Artificial Intelligence in Medicine.

#### Marios Mavronicolas

#### Professor

Algorithmic Game Theory, Distributed and Parallel Computing, Algorithmic Issues in Communication Networks, Computational Complexity.

#### George Pallis

#### Lecturer

Internet Computing Systems, Web Technologies.

# George Papadopoulos Professor

Component-Based Systems, Parallel and Distributed Systems, Cooperative Information Systems.

#### Constantinos Pattichis

#### Professor

Intelligent Systems, Neural Networks, Genetic Algorithms, Signal and Image Processing and Analysis, Telematics and their applications in Medicine.

#### Anna Philippou

#### Associate Professor

Concurrency Theory and its applications, Specification and Verification, Formal Methods for Safety-Critical Systems and Semantics of Programming Languages.

#### Andreas Pitsillides

#### Professor

Fixed and Wireless/Mobile Networks (including TCP/IP, UMTS, WLAN, ad-hoc and Sensor Networks), Control Theory (including Nonlinear Control, Adaptive Control and Fuzzy Control) with applications to Networking, and Telehealth Care Systems.

#### George Samaras

#### Professor

Mobile/Wireless Computing and Data, Mobile Agents, Wireless Personalization Systems, Web Systems, Database Systems, Distributed Transaction Processing and Commit Protocols.

### Yiannos Sazeides

### Assistant Professor

Computer Architecture: Patterns of Computation, Cache Redundancy, Chip Multicores, Power and Temperature Aware Microarchitectures, Prediction, and Speculation.

#### Christos N. Schizas

#### Professor

Computational Intelligence, Artificial Neural Networks, Genetic Algorithms, Systems Theory, Computer Applications in Medicine, Engineering, Meteorology, Financial and Diagnostic Systems.

#### Pedro Trancoso

#### Assistant Professor

Computer Architecture, Memory Hierarchy and Advanced Memory Technologies, Architecture-Aware Optimizations for Database Workloads, and Power-Aware Optimizations.

#### Vasos Vassiliou

#### Assistant Professor

High-Speed Networks (MPLS), Mobile Networks (MIP, Ad-hoc, Sensor), Wireless Telecommunications (UMTS), Traffic Engineering.

#### Demetris Zeinalipour

#### Lecturer

Data Management and Networking: Distributed Query Processing, Storage and Retrieval Methods for sensor and Peerto-Peer Systems, Network Data Management.

# **Contact Details**

#### **Department Secretariat**

Maria Kittira Tel.: 22892700 Fax: 22892701 e-mail: manak@cs.ucy.ac.cy http://www.ucy.ac.cy/cs-en

Code and Title of Courses	Master in Computer Science	Master in Internet Computing	Master in Intelligent Systems	Professional Master in Advanced Information Technologies
CS 601 – Distributed Systems				
CS 602 – Foundations of Web Technologies				
CS 603 – Advanced Software Engineering	$\checkmark$			
CS 604 – Artificial Intelligence	$\checkmark$		$\checkmark$	
CS 605 – Advanced Computer Architecture I	$\checkmark$			
CS 606 – Computer Networks and the Internet	$\checkmark$	$\checkmark$		
CS 607 – Visual Computing	$\checkmark$			
CS 646 – Advanced Topics in Databases				
CS 651 – Data Management for Mobile Computing	$\checkmark$	$\checkmark$		
CS 652 – E-Commerce	$\checkmark$	$\checkmark$		
CS 653 – Computer Games Software Technology				
CS 654 – Learning Technologies and Open and Distance Learning	$\checkmark$	$\checkmark$		
CS 655 – Advanced Computer Architecture II				
CS 656 – Computer Graphics: Modelling and Realism	$\checkmark$			
CS 657 – Wireless Computer Networks	$\checkmark$	$\checkmark$		
CS 658 – Digital Video Processing	$\checkmark$		$\checkmark$	
CS 659 – Design of Embedded Systems	$\checkmark$			
CS 660 – Information Retrieval and Search Engines	$\checkmark$	$\checkmark$	$\checkmark$	
CS 661 – Multi-Agent Systems	$\checkmark$		$\checkmark$	
CS 662 – Machine Learning and Data Mining	$\checkmark$		$\checkmark$	
CS 663 – Computational Logic	$\checkmark$		$\checkmark$	
CS 664 – System Analysis and Verification	$\checkmark$			
CS 665 – Constraint Solving Methods	$\checkmark$		$\checkmark$	
CS 666 – Computational Bioscience	√		$\checkmark$	
CS 667 – Neuroinformatics	$\checkmark$		$\checkmark$	
CS 668 – Mechanical Vision	$\checkmark$			$\checkmark$
CS 673 – Algorithmic Game Theory	√	√		
CS 674 – Network and System Security	√	√		
CS 675 – Web Services and Service Oriented Computing	√	√		
CS 676 – Software Architectures	√			$\checkmark$
CS 677 – Component-Based Systems	√			
CS 678 – Temporal Information Systems in Medicine	√			
CS 679 – Electronic Health	$\checkmark$			
CS 699 – Special Topics in Computer Science				

# Table of Specialisation Courses of the Master Programmes

# **Courses from other Departments**

ECE 621 – Random Processes	$\checkmark$	
ECE 635 – Optimization Theory and Applications		
ECE 658 – Computer Systems Performance Evaluation and Simulation		

# **Mathematics and Statistics**

The Department offers postgraduate programmes which lead to the following degrees:

- Master in Pure Mathematics
- Ph.D. in Mathematics Pure Mathematics
- Master in Applied Mathematics
- Ph.D. in Mathematics Applied
  Mathematics
- Master in Applied Statistics
- Ph.D. in Statistics
- Mathematics Education
   (Interdepartmental Programme)
- Master in Mathematics (in cooperation with the University of Poitiers, France)



# **Postgraduate Studies Programme**

The programmes are supervised by the Postgraduate Programmes Coordinator who can be either the chairperson of the Department or a faculty member appointed by the Departmental Board. The Coordinator is the chairperson of the Postgraduate Studies Committee. The other members are also appointed by the Departmental Board. An interdepartmental committee coordinates the interdepartmental postgraduate programme.

# Admission to Postgraduate Programmes

The number of postgraduate students to be admitted is announced separately for each specific programme at the Master's or Doctorate level.

The criteria for evaluation and ranking of the candidates are the following:

- Prior university training in an appropriate field of study and a transcript of the degree. Appropriate fields of study are Mathematics, Statistics or other related subjects such as Computer Science, Physics, Engineering, etc.
- Recommendation letters (at least two) from university professors.
- Personal interview (if necessary).
- Other qualifications, such as exams, awards, distinctions, etc.
- Sufficient knowledge of the English language (recommended).
- Candidates with insufficient knowledge of mathematics will be required to attend a number of undergraduate courses, in addition to those required by the regulations of the Department.

For more information see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or, the Department's Secretariat.

# **MASTER IN APPLIED MATHEMATICS**

# Regulations

To obtain a Master Degree in Applied Mathematics, successful completion of 90 ECTS is required. Each course corresponds to 10 ECTS, the Master's Thesis to 15 ECTS and Seminars to 5 ECTS.

### **Master Thesis**

Successfully completing a Master Thesis (MT) (15 ECTS) is required of all students enrolled in the Master's Program in Applied Mathematics. However, this assumes that the student has found a faculty member willing to oversee the MT. Students may enroll in the MT class after completing their first semester of studies.

#### Choice of topic for the Master Thesis

Topics for the MT should relate to the department faculty's areas of expertise, which may be found on the faculty's individual web pages. Students should discuss with faculty members the possible topics that are available. The faculty member must agree on the topic and the undertaking of the MT.

To enroll in the Master's Thesis, students must register for the following courses:

- MAS 697 Master's Thesis in Applied Mathematics II (15 ECTS)
- MAS 698 Continuation of Master's Thesis in Applied Mathematics II (0 ECTS)

#### Seminars

Students in this program must attend the department seminars and colloquia in order to receive the 5 ECTS.

Specifically, students must enroll for 3 semesters in the Seminar courses and must attend at least 14 seminars in order to receive the full 5 ECTS, as explained below.

MAS 642 Mathematics and Statistics Seminar (2ECTS)

MAS 643 Mathematics and Statistics Seminar (2 ECTS)

# MAS 644 Mathematics and Statistics Seminar (1 ECTS)

# Indicative Programme of Study

Options	ECTS per course	Total
6 Compulsory Courses	10	60
1 Elective Course	10	10
1 Seminar	5	5
Master Thesis	15	15
TOTAL		90

### **List of Courses**

#### Category I

2 of the following compulsory courses: MAS 601 Measure Theory and Integration MAS 604 Functional Analysis MAS 606 Function Theory of One Complex Variable

#### Category II

2 of the following compulsory courses: MAS 603 Partial Differential Equations MAS 621 Numerical Linear Algebra MAS 671 Numerical Solution of Ordinary Differential Equations MAS 673 Finite Element Methods

#### Category III

2 of the following compulsory courses: MAS 613 Ordinary Differential Equations MAS 672 Numerical Solution of Partial Differential Equations MAS 677 Topics in Numerical Analysis I MAS 678 Topics in Numerical Analysis II MAS 679 Topics in Numerical Analysis III MAS 682 Classical Mechanics MAS 683 Fluid Dynamics MAS 684 Scientific Computing with MATLAB MAS 687 Topics in Applied Mathematics I MAS 688 Topics in Applied Mathematics II MAS 689 Topics in Applied Mathematics III MAS 697 Topics in Differential Equations I MAS 698 Topics in Differential Equations II MAS 699 Topics in Differential Equations II

Note: Category III also includes all courses offered under Categories I and II

#### Elective Courses

MAS 602 Fourier Analysis MAS 605 Second Order Elliptic Partial Differential Equations MAS 608 Second Order Evolution Partial Differential Equations MAS 611 Harmonic Analysis MAS 617 Topics in Mathematical Analysis I MAS 618 Topics in Mathematical Analysis II MAS 619 Topics in Mathematical Analysis III MAS 620 Approximation Theory MAS 633 Relativity Theory

Note: Any postgraduate course offered by the Department of Mathematics and Statistics may be taken as an elective course.

# Ph.D. IN MATHEMATICS (Applied Mathematics) Requirements for a Ph.D. Degree

For candidacy to the Doctoral Degree in Applied Mathematics, the following are required:

- Successful completion of at least 120 ECTS at the postgraduate level (partial or complete exemption may be given by the Departmental Council provided the doctoral student already has a Master Degree);
- (2) Successful completion of a written Comprehensive Examination (CE).

Candidates must complete the CE requirement by the sixth semester of their studies. The CE consists of two, three-hour written examinations. The first written examination must be in Analysis (see the syllabus in the previous section). The second is based on one of four areas (Applied Mathematics, Numerical Analysis, Partial Differential Equations, Numerical Solution of Ordinary Differential Equations – syllabi are given below); each candidate chooses the area he/she wishes to be tested on.

Once the doctoral candidate successfully completes both parts of the CE, he/she may proceed to the Doctoral Dissertation stage. If the candidate succeeds in only one part of the CE, then he/she may retake the unsuccessful part the next time the CE is held. If the candidate fails both parts, then he/she will be given one more chance to pass the exam during the next CE period. The CE is written and corrected by the department's faculty who specialize in the chosen areas. A passing score on the CE requires a minimum of 50% of the total points.

Failure to pass the CE a second time will automatically result in termination of the candidate's doctoral studies.

(3) Other Requirements

All other requirements conform to the rules and regulations for postgraduate studies at the University of Cyprus.

# Syllabus for the Comprehensive Examination (CE) in Pure Mathematics

Choice of 1 of the following 4 areas:

#### **Applied Mathematics**

Lie groups and algebras, Equations of Motion (Newton, Lagrange), Poisson structures, Integrable systems, Lax

pairs, Bi-Hamiltonian systems, Symmetries, Noether's theorem, variational calculus, integral equations.

#### **Partial Differential Equations**

First order partial differential equations, Second order partial differential equations: Wave Equation, Heat Equations, Harmonic functions. Initial boundary value problems, Fourier series, Green's functions, Maximum Principle.

#### **Numerical Analysis**

Numerical solution of nonlinear equations. Vector and matrix norms. Solution of linear systems (direct and iterative methods). Calculation of eigenvalues and eigenvectors. Interpolation (Lagrange and Hermite). Numerical integration (Newton – Cotes, Gauss).

# Numerical Solution of Ordinary Differential Equations

Single and multi-step methods and Runge-Kutta methods for the numerical solution of initial value problems for ordinary differential equations. Finite Difference Methods for ordinary differential equations. Finite Element Methods for ordinary differential equations.

# MASTER IN PURE MATHEMATICS Regulations

To obtain a Master Degree in Pure Mathematics, successful completion of 90 ECTS is required. Each course corresponds to 10 ECTS, the Master's Thesis to 15 ECTS and Seminars to 5 ECTS.

#### **Master Thesis**

Successfully completing a Master Thesis (MT) (15 ECTS) is required of all students enrolled in the Master's Program in Pure Mathematics. However, this assumes that the student has found a faculty member willing to oversee the MT. Students may enroll in the MT class after completing their first semester of studies.

#### Choice of topic for the Master Thesis

Topics for the MT should refer to the department faculty's areas of expertise, which may be found on the faculty's individual web pages. Students should discuss with faculty members the possible topics that are available. The faculty member must agree on the topic and the undertaking of the MT. To enroll in the Master's Thesis, students must register in the following courses:

MAS 695 Master's Thesis in Pure Mathematics I (15 ECTS)

MAS 696 Continuation of Master's Thesis in Pure Mathematics II (0 ECTS)

#### Seminars

In order to receive the 5 ECTS for Seminars, attendance at the department colloquia and seminars is mandatory.

More specifically, students must enroll for 3 semesters in the Seminar courses and must attend at least 14 seminars in order to receive the full 5 ECTS, as explained below.

MAS 642 Mathematics and Statistics Seminar (2 ECTS) MAS 643 Mathematics and Statistics Seminar (2 ECTS) MAS 644 Mathematics and Statistics Seminar (1 ECTS)

## Indicative Programme of Studies

Options	ECTS per Course	Total
4 Compulsory Courses	10	40
3 Elective Courses	10	30
1 Seminar	5	5
Master Thesis	15	15
TOTAL		90

# **List of Courses**

#### **Compulsory Courses**

MAS 601 Measure Theory and Integration MAS 606 Function Theory of One Complex Variable MAS 625 Group Theory **or** MAS 626 Galois Theory MAS 632 Riemannian Geometry

#### **Elective Courses**

MAS 602 Fourier Analysis MAS 604 Functional Analysis MAS 605 Second Order Elliptic Partial Differential Equations MAS 607 Function Theory of Several Complex Variables MAS 608 Second Order Evolution Partial Differential Equations MAS 609 Stochastic Analysis MAS 610 Stochastic Processes MAS 611 Harmonic Analysis MAS 612 Measure and Probability MAS 617 Topics in Mathematical Analysis I MAS 618 Topics in Mathematical Analysis II MAS 619 Topics in Mathematical Analysis III MAS 620 Approximation Theory MAS 622 Coding Theory MAS 623 Number Theory MAS 625 Group Theory MAS 626 Field and Galois Theory MAS 628 Group Representations II MAS 629 Topics in Algebra I MAS 630 Topics in Algebra II MAS 631 Differential Topology MAS 633 General Relativity MAS 634 Algebraic Topology I MAS 635 Lie Groups and Algebras MAS 636 Algebraic Topology II MAS 637 Spectral Geometry MAS 638 Spin Geometry MAS 639 Algebraic Geometry MAS 640 Topics in Geometry I MAS 641 Topics in Geometry II MAS 642 Topics in Geometry III MAS 660 Probability Theory MAS 682 Classical Mechanics

# Ph.D. IN MATHEMATICS (Pure Mathematics) Requirements for a Ph.D. Degree

For candidacy to the Doctoral Degree in Pure Mathematics, the following are required:

- Successful completion of at least 120 ECTS at the postgraduate level (partial or complete exemption may be given by the Departmental Council provided the doctoral student already has a Master Degree);
- (2) Successful completion of a written Comprehensive Examination (CE).

Candidates must complete the CE requirement by the sixth semester of their studies. The CE consists of two, three-hour written examinations. The CE is based on two of three areas (Analysis, Algebra, Geometry – syllabi are given below), which the candidate is free to choose.

Once the doctoral candidate successfully completes both parts of the CE, he/she may proceed to the Doctoral Dissertation stage. If the candidate succeeds in only one part of the CE, then he/she may re-take the unsuccessful part during the next CE period. If the candidate fails both parts, then he/she will be given one more chance to pass the CE (during the next CE period). The CE is written and corrected by the department's faculty members who specialize in the chosen areas. A passing score on the CE requires a minimum of 50% of the total points.

Failure to pass the CE a second time will automatically result in termination of the candidate's doctoral studies.

#### (3) Other Requirements

All other requirements conform to the rules and regulations for postgraduate studies at the University of Cyprus.

# Syllabus for the Comprehensive Examination (CE) in Pure Mathematics

Choice of 2 of the following 3 areas:

#### Analysis

Structure and properties of real numbers, continuity, differentiability, Riemann integrability. Metric spaces, compactness, connectedness, Bolzano-Weierstrass theorem, Heine-Borel theorem, Baire category theorem, uniform continuity, convergence of sequences and series of functions. σ-Algebras, outer measures, Borel and Lebesgue measures, measurable functions, Lebesgue-dominated convergence theorem, monotone convergence theorem, Fatou's lemma. Signed measures, Radon-Nikodym theorem, product measures, Fubini's theorem. The complex plane, stereographic projection. Möbius transformations. Elementary analytic functions. Cauchy-Riemann equations, harmonic functions. Cauchy's integral formula and theorem, Morera's theorem. Liouville's theorem. Fundamental theorem of algebra. Taylor and Laurent series, residues. Maximum Measure Principle. Schwarz's lemma, the Argument Principle, Rouche's theorem, conformal mapping, the Riemann mapping theorem.

#### Algebra

Groups and homomorphisms, Lagrange's theorem. Direct and semi-direct products. Cyclic, dihedral and symmetric groups. Free groups, generators and relations, finitely generated Abelian groups. Group actions. Sylow's theorem and p-groups. Simple groups, composition series. Solvable groups. Rings and homomorphisms. Ideals. Polynomial rings. Factorization in commutative rings. Modules and exact sequences. Extensions of fields, splitting field of a polynomial, separable extensions, normal extensions. Fundamental theorem of Galois theory. Roots of unity and cyclotomic polynomials. Solvability by radicals. Symmetric functions and Abel's theorem.

#### Geometry

Topological and differentiable manifolds, basic examples and properties. Fundamental group. Tangent spaces. Partitions of unity. Normal values. Vector fields, flows. Frobenius's theorem. Differentiable forms. Stokes's theorem. Riemannian manifolds. The Riemannian connection and exterior differential forms. Geodesic curves, exponential mapping, normal coordinates, Gauss's Lemma. Hopf-Rinow theorem. Curvature. Gauss-Bonnet theorem. Hadamard-Cartan theorem.

### **MASTER IN APPLIED STATISTICS**

To obtain a Master degree in Applied Statistics successful completion of a minimum of 93 ECTS is required.

#### **Indicative Programme of Studies**

ECTS
10
10
10
1
10
10
10
1
10
10
10
1
93
10
10

MAS 660 Probability Theory	10
MAS 661 Topics in Statistics I	10
MAS 662 Topics in Statistics II	10
MAS 663 Topics in Statistics III	10
MAS 664 Bayesian Statistics*	10
MAS 665 Computational Statistics*	10
MAS 666 Biostatistics*	10
MAS 670 Theory of Statistics	10
Natas	

Notes:

\* In these courses, the use of statistical software is an integral part.

- \*\* A mandatory course. Students will attend colloqium lectures. A pass/fail course. Students must enroll in the course every semester.
- + (a) Two classes from Options I, II and III can be replaced by a Master thesis. The subject of the thesis should be related to Statistical Science. The thesis is carried out under the supervision of a faculty member of the Department.
- + b) If a student does not choose the thesis option, then option III can be replaced by either Independent Study (MAS 667) or by practical training in the private or public sector (MAS 668).

# **Ph.D. IN STATISTICS**

# **Requirements for a Ph.D. Degree**

For the fulfilment of a Doctoral degree in statistics, the following are required:

**1. Successful completion of 60 ECTS at postgraduate level**, in accordance with the provisions of the programme of studies of the Department. Students with a Master degree are partially or fully exempted from this requirement.

The 60 ECTS should be completed as follows:

- At least 10 ECTS in Probability Theory (MAS 660)
- At least 10 ECTS in Statistical Theory (MAS 670)
- At least 10 ECTS in Simulation and Data Analysis (MAS 658)

The remaining 30 ECTS may be completed with any postgraduate courses offered by the Department, including reading courses.

#### 2. Comprehensive Examination (CE)

Successful completion of the following CEs with a grade of 7.5 or better:

- CE in Probability Theory (MAS 760) 0 ECTS
- CE in Statistical Theory (MAS 770) 0 ECTS
- CE in Simulation and Data Analysis (MAS 758) 0 ECTS

The CE in Probability Theory (MAS 760) and Statistical Theory (MAS 770) correspond to the final exams for MAS 660 and MAS 670. The CE in Simulation and Data Analysis (MAS 758) is comprised of an open lecture on a project involving data analysis and computations.

#### 3. Seminar

All doctoral students must enrol in the Seminar of Applied Statistics for at least 6 semesters.

#### Seminar Codes:

MAS 751 Seminar in Applied Statistics (PhD) I (0 ECTS) MAS 752 Seminar in Applied Statistics (PhD) II (0 ECTS) MAS 753 Seminar in Applied Statistics (PhD) III (0 ECTS) MAS 754 Seminar in Applied Statistics (PhD) IV (0 ECTS) MAS 755 Seminar in Applied Statistics (PhD) V (0 ECTS) MAS 756 Seminar in Applied Statistics (PhD) VI (0 ECTS)

#### 4. Other Requirements

All other requirements conform to the rules and regulations for postgraduate studies at the University of Cyprus.

# The Syllabus Content for the Comprehensive Examination

#### **PROBABILITY THEORY**

#### **Axiomatic foundation**

Measure theoretic probability, measure theory and integration,  $\sigma$ -algebras, monotone classes, events, probability spaces, stochastic independence, 0-1 laws, the Borel-Cantelli lemmas.

#### **Random variables**

Random variables, distribution of a random variable, continuous and discrete random variables, distribution of a function of a random variable, random vectors.

#### Expectation

Expectation of a random variable, expected value and independence, expected value as the integral with respect to a probability measure, properties of integration, moments, probability inequalities, conditional expectation.

#### Limit theorems

Modes of convergence of a sequence of random variables, uniform integrability, convergence of moments, moment generating functions, characteristic functions, theorems of continuity and inversion, infinite

divisibility laws and stable laws, central limit theorem, weak and strong laws of large numbers.

#### Martingales and random walks

Properties of random walk, limit theorems, definition and properties of martingales, martingale inequalities, convergence criteria, weak and strong laws for martingales, central limit theorem for martingales.

#### STATISTICAL THEORY

#### **Estimation theory**

Random sample, statistic, families of distributions, exponential families. Estimators (maximum likelihood, least squares, moment estimators, Bayes estimators). Properties of estimators, unbiasedness, sufficiency, consistency. Unbiased estimators of uniformly minimal variance, Fisher information, Cramer – Rao inequality. Rao – Blackwell Theorem and Theorem of Lehmann – Scheffe.

#### Theory of testing statistical hypothesis

Decision theory, simple and composite hypothesis, test statistics, properties of tests. Neyman – Pearson lemma, uniformly most powerful tests. Likelihood ratio tests. Hypothesis testing and confidence intervals. Goodnessof-fit tests, tests of independence, rank tests.

# **Course Descriptions**

#### MAS 601 Measure and Integration

Metric spaces.  $\sigma$ - algebras, measures, outer measures. Borel measures on the real line. Measurable functions. Integration. General convergence theorems. Signed measures. Product measures n-dimensional Lebesque integral. The Radon Nikodym Theorem. Lp spaces.

#### **MAS 602 Fourier Analysis**

The Schwarz space. Fourier transform. Plancherel's formula. Convergence of Fourier series and integrals. Applications in partial differential equations. Distributions. Tempered distributions, compactly supported distributions. Sobolev spaces.

#### **MAS 603 Partial Differential Equations**

First order quasi-linear equations, the method of characteristics. Classification and normal forms. Existence theorem of Cauchy-Kovalevskaya and uniqueness theorem of Holmgren. Distributions and weak solutions. Hyperbolic theory, characteristics, propagation of singularities. Wave equation in one, two and three space dimensions. Conservation laws and shock waves. Elliptic theory, Laplace and Poisson equations, fundamental solutions, harmonic functions. Variational formulation of elliptic boundary value

problems. Parabolic theory, heat equation, parabolic initial/boundary value problems.

#### MAS 604 Functional Analysis

Compact operators. Spectral theory. Self adjoint operators. Closed and orthonormal operators. Spectral theorem. Semigroups.

#### MAS 605 Elliptic Partial Differential Equations of Second Order

Laplace equation, fundamental solutions, Green's function, maximum principle, Poisson kernel, Harmonic functions and their properties, Harnack inequalities, equations with variable coefficients, Dirichlet problem, existence and regularity of solutions.

#### MAS 606 Function Theory of One Complex Variable

Basic facts about complex functions of one complex variable. Differentiation. Cauchy-Riemann equations. Elementary complex functions. Complex integration and the Cauchy Theorem. Applications of Cauchy Theorem. Meromorphic functions. Power series and Laurent series. Residues. Entire functions and Conformal mappings.

#### **MAS 607 Function Theory of Several Complex Variables**

Basic facts about holomorphic functions of several complex variables. Integral representations of holomorphic functions of several complex variables.

#### MAS 608 Evolution Differential Equations with Partial Derivatives of Second Order

Heat equation, fundamental solution, properties of solutions, weak solutions. Maximum principle, wave equations. Solutions with spherical means. Non-homogeneous problem, energy methods, weak solutions, propagation of singularities. Distributions, fundamental solution, L2 theory, etc.

#### MAS 609 Stochastic Analysis

Review of the basic notions of probability theory, stochastic integration, Ito's lemma, stochastic differential equations, applications (financial mathematics, formula Black-Scholes, etc.).

#### **MAS 610 Stochastic Processes**

Basic notions of stochastic processes, Kolmogorov's theorem, discrete and continuous time Markov processes, point processes, Brownian motion, random walk.

#### **MAS 611 Harmonic Analysis**

Approximation to the identity, weak Lp spaces, interpolation theorems. Maximal functions, harmonic functions, singular integrals, Littlewood-Paley theory. Function spaces.

#### MAS 612 Measure and Probability

σ- algebras, measures, probability measures, measurable functions. Integration theory. Product measures and Fubini Theorem. Lebesque-Stieltjes measure, ordinary distributions, characteristic functions. Sequences of measurable functions and different notions of their convergence. Central Limit Theorem and related asymptotic developments. The distribution of the recursive logarithm, Radon-Nicodym Theorem. Conditional mathematical expectation. Martingales.

#### **MAS 613 Ordinary Equations**

Existence theorems: Picard-Lindelof and Cauchy-Peano. Uniqueness theorem when Lipschitz condition is satisfied. Smooth dependence of solutions on parameters. Extensibility of solutions. Linear systems, fundamental solution matrix, systems with periodic coefficient. Stability of nonlinear systems. Sturm-Liouville theory.

#### MAS 617 Topics in Mathematical Analysis I MAS 618 Topics in Mathematical Analysis II MAS 619 Topics in Mathematical Analysis III

Topics in real analysis, complex analysis or differential equations.

#### MAS 621 Numerical Linear Algebra

Elements of matrix analysis, vector and matrix norms. Factorization and least - squares methods. Stability. Direct and iterative methods for the solution of linear systems. Methods for calculating eigenvectors and eigenvalues.

#### MAS 622 Algebraic Coding Theory

Finite fields. Linear codes, syndrome decoding. Cyclic codes. BCH codes and Reed – Solomon codes. MDS codes. Permutation decoding.

#### MAS 623 Number Theory

Introduction to algebraic number theory. Quadratic reciprocity, Gauss and Jacobi sums. Field extensions, finite fields, ideal classes. Quadratic and cyclotomic fields. Applications to Diophantine equations.

#### MAS 624 Introduction to Commutative Algebra

Prime and maximal ideals. Extension. Finitely generated R – modules. Exact sequences. Tensor product of modules. Algebras. Noetherian rings and Artin rings. Dedekind domains.

#### MAS 626 Field and Galois Theory

Polynomial rings. Field extensions, splitting fields. Separable extensions, normal extensions. The fundamental theorem of Galois theory. Roots of unity and cyclotomic polynomials. Solution by radicals. Symmetric functions and Abel's theorem.

#### MAS 627 Group Representation Theory I

Representations. FG-modules, FG-submodules and FGhomomorphisms. Maschke's Theorem and Schur's Lemma. Irreducible module. The group algebra, the centre of the group algebra. Characters, relation between characters and representations. Character tables. Frobenius reciprocity theorem.

#### MAS 628 Group Representation Theory II

Semi simple rings, construction of irreducible R – modules. Splitting fields. Clifford's theorem. Mackey Decomposition Theorem. Representations of Weyl groups. Representations of compact groups.

#### MAS 629 Topics in Algebra I MAS 630 Topics in Algebra II MAS 631 Differential Topology

Differentiable manifolds. Tangent space. Partition of unity. Regular points. Sard's theorem. Vector fields and flows. Frobenius Theorem. Differential forms. Stokes Theorem. De Rham's Theorem.

#### MAS 632 Riemannian Geometry

Riemannian manifolds. Geodesics, exponential map, normal coordinates. Gauss lemma. Theorem of Hopf- Rinow. Curvature. Jacobi fields. Theorems of Bonnet- Myers, Synge-Weinstein and Hadamard - Cartan. Homogeneous and symmetric spaces.

#### **MAS 633 General Relativity**

Lorentz geometry. Special relativity. Newton spacetime, Minkowski spacetime. Lorentz transformation. Einstein equations. Special solutions (Schwarzschild).

#### MAS 634 Algebraic Topology I

Homology theory and applications. Cohomology. Universal coefficient theorem. Products. Kuenneth formula. Thom isomorphism. Poincare duality.

#### MAS 635 Lie Groups and Lie Algebras

Differentiable manifolds. Tangent spaces and vector fields. Lie Groups. Exponential function. Homogeneous spaces. The Campbell-Hausdorf formula.

Ado's Theorem. Lie algebras. Ideals and homomorphisms. Solvable and nilpotent Lie algebras. Semisimple Lie algebras. Root systems. Compact Lie groups.

#### MAS 636 Algebraic Topology II

Obstruction theory. Bundles and K- theory. Bordism. Spectral sequences. Characteristic classes.

#### MAS 637 Spectral Geometry

Laplace operator. Minimax principle. Isoparametric inequalities. Heat kernel.

#### MAS 638 Spin Geometry

Clifford algebras. Spin groups and representations. Spin structures. Spin connection. Spin manifolds. Dirac operator. Bochner formula. Lichnerowicz's Theorem.

#### MAS 639 Algebraic Geometry

Algebraic sets and the Hilbert-Nullstellensatz theorem. Affine, projective and quasi-projective varieties, morphisms, products. Local properties (smooth and singular points), tangent space, dimension. Divisors on algebraic curves, Riemann-Roch

theorem. Bezout's theorem and the group structure of an elliptic curve. Blow up and resolution of singularities. Lines on hypersurfaces.

#### MAS 640 Topics in Geometry I MAS 641 Topics in Geometry II

Topics from Differential Geometry, Algebraic Geometry and Algebraic Topology.

#### **MAS 650 Mathematical Statistics**

Univariate and multivariate random variables, distribution function, joint and conditional distribution, independence, moments. Special parametric families of distributions. Estimation. Methods of finding estimators. Properties of estimators, sufficiency, unbiasedness, consistency. Comparison of estimators. Confidence Intervals. Hypothesis testing. Simple and composite hypothesis, power function. Methods of constructing tests. Properties of tests, unbiasedness, consistency. Comparison of tests. Hypothesis testing and confidence intervals.

#### **MAS 653 General Linear Models**

Linear and multiple regression, residuals and model selection procedures, diagnostics. Analysis of variance and non linear regression. Design of experiments, completely randomized designs, designs with two or more factors with interactions. Block designs, split plot and nested designs.

#### MAS 654 Nonparametric Statistics

Order statistics and their distributions. Tolerance regions. Rank and sign tests for one and two populations. Goodness of fit tests (Kolmogorov – Smirnov, Lilliefors, Shapiro – Wilks). Siegel – Tukey and Kruskal – Wallis tests. Normal and Savage scores. Fisher exact test for 2x2 contingency tables. Mantel – Haenszel test for contingency tables. Kaplan– Meier estimator of the survival function. Jonckheere – Terpstra and page test for ordered alternatives. Nonparametric correlation coefficients (Spearman, Kendall) and measures of agreement.

#### MAS 655 Survey Sampling

Survey design, sampling and nonsampling errors, simple random sampling, stratified sampling, systematic sampling, cluster sampling, ratio estimators, regression estimators, determination of optimal sample size, bias in survey sampling, modern techniques of survey sampling.

#### **MAS 656 Time Series Analysis**

Stochastic processes, weak and strong stationarity. Trend and seasonal behavior of time series. Sample autocorrelation function and sample partial autocorrelation function. Prediction. Parametric families of stochastic processes. ARMA, ARIMA and SARIMA models. Properties, estimation and examples. ARCH and GARCH processes, properties of estimators and examples.

#### MAS 657 Statistical Analysis of Discrete Data

Types of discrete data. Contingency tables and inference (testing independence and homogeneity). Measures of association. Loglinear models for contingency tables. Logit models. Distribution and Inference for categorical data. Asymptotic theory of goodness-of-fit X2 tests. Logistic regression.

#### MAS 658 Simulation and Data Analysis

Introduction to R, commands, input/output files. Descriptive statistics, explanatory data analysis, regression analysis and analysis of variance, statistical inference (testing hypotheses, goodness of fit tests). Resampling, Simulation. Importance sampling.

#### MAS 659 Multivariate Analysis

Random vectors, measures of center and variation in multivariate moments. Multivariate normal distribution. Tests for normality. Estimation of the mean vector and the variance analysis, independence, multivariate – covariance matrix. Wishart and Hotelling distributions. Statistical inference. Union – Intersection Test. Confidence regions.

Multivariate analysis of variance and multivariate regression analysis. Least squares method and Wilks distribution. Analysis of covariance. Principal components, Factor analysis, Discriminant analysis, Cluster analysis.

#### **MAS 660 Probability Theory**

Measure spaces and  $\sigma$ -algebras, independence, measurable functions and random variables, distribution functions, Lebesgue integral and expectation, convergence concepts, law of large numbers characteristic functions, central limit theorem, conditional probability, conditional expectation, martingales, central limit theorem for martingales.

#### MAS 661 Topics in Statistics I MAS 662 Topics in Statistics II MAS 663 Topics in Statistics III

Topics from probability theory, statistical theory and their applications, such as categorical time-series, non-parametric and semi-parametric statistics, U-statistics, Bootstrap methods, survival analysis, wavelets and their applications in statistics and time-series analysis, analysis of spatial data, analysis of functional data.

#### **MAS 664 Bayesian Statistics**

Subjective probability, Bayes rule, prior and posterior distributions, conjugate and non-informative priors, pointwise estimation and credible intervals, hypotheses testing, introduction to Bayesian decision analysis, introduction to empirical Bayes analysis, introduction to Markov chain Monte Carlo techniques.

#### **MAS 665 Computational Statistics**

Numerical linear algebra: Multiple regression, Cholesky decomposition, diagnostics and colinearity, principal components and eigenvalue problems.

Nonlinear statistical methods: Maximum likelihood estimation, Newton-Raphson and related methods, multivariate data and the Newton Raphson method, optimization techniques (unconditional and under constraints) EM algorithm.

Numerical Integration and Approximation: Newton-Coates method, spline interpolation, Monte Carlo integration, general approximation methods.

Probability Density Estimation: Histogram, linear and non linear smoothing, splines.

Bootstrap.

#### **MAS 666 Biostatistics**

Definition of epidemiology and types of epidemiological studies. Descriptive statistics: graphical and numerical methods for medical data. Measures of association and correlation. Measures of risk and rate. Inference for mean, proportions indicators and coefficients of correlation. Nonparametric tests (Fisher's exact test, McNemar test, etc.). Diagnostic methods, sensitivity and specificity. Numerical methods in clinical epidemiology, ROC curves. Meta - analysis. Censored data. Survival and hazard functions. Nonparametric estimation (Kaplan – Meier and Nelson – Aalén estimators). Methods of comparison of two survival functions (Log – rank, Breslow Peto – Peto tests). Semiparametric estimation (Cox proportional hazards model, partial likelihood). Parametric estimation (exponential, Weibull, log – logistic and lognormal models, proportional odds model). Frailty models.

#### MAS 667 Statistical Project

This course requires the completion of a project on a specific statistical problem. The course gives students the opportunity to engage in applications of statistical methodology, to develop and cultivate their research ability, to broaden their knowledge of statistical methodology and to become familiar with various scientific areas where the statistical methodology is applied. This aim is achieved either through the research projects of the faculty members or through projects undertaken by the department for collection and analysis of data. Moreover, the students and particularly those wishing to enter the doctoral program, have the opportunity to familiarize themselves with the research interests of their academic advisor and possibly publish original results.

#### **MAS 668 Practical Training**

Students are placed in organisations in the private or public sector in order to acquire experience in topics that are closely related to their graduate programme of studies. At the end of the training period, the performance of students is evaluated based on a written report by the management of the host organisation.

#### MAS 670 Statistical Theory

Stochastic convergence, estimation, asymptotic properties of estimators, efficiency, testing hypotheses, asymptotic properties and efficiency of testing procedures, convergence in metric spaces, stochastic processes.

#### MAS 671 Numerical Solution of Ordinary Differential Equations

One-step and multistep methods for initial value problems. Runge – Kutta methods. Numerical solution of two-point boundary value problems.

#### MAS 672 Numerical Solution of Partial Differential Equations

Parabolic equations, the heat equation. Stability. The Crank – Nicolson method, ADI methods. Hyperbolic equations, the Courant – Friedrichs – Lewy condition. Elliptic equations, the Poisson equation. Iterative methods for the solution of linear systems.

#### **MAS 673 Finite Element Methods**

Sobolov spaces. Ritz-Galrkin approximation. Variational formulation of elliptic boundary value problems. Finite element spaces. Polynomial approximation in Sobolev spaces. N-dimensional variational problems.

#### MAS 677 Topics in Numerical Analysis I MAS 678 Topics in Numerical Analysis II MAS 679 Topics in Numerical Analysis III

Topics in Computational Mathematics and Approximation Theory.

#### MAS 682 Classical Mechanics

Lie Groups and Lie Algebras. Equations of motion (Newton, Lagrange). Poisson structures, Integrable systems, Lax pairs, bi – Hamiltonian systems, Todu lattices. Symmetries of Differential Equations, Noether Theorem.

#### **MAS 683 Fluid Dynamics**

Equations of motion. Viscous flows. Stokes flows. Non-Newtonian and viscoelastic flows.

#### MAS 684 Topics in Applied Mathematics I MAS 685 Topics in Applied Mathematics II MAS 686 Topics in Applied Mathematics III

Topics from different areas of Applied Mathematics.

#### MAS 687 Topics in Differential Equations I MAS 688 Topics in Differential Equations II MAS 689 Topics in Differential Equations III

Topics from Ordinary Differential Equations and Partial Differential Equations.

# **Research Interests of the Academic Staff**

- Nelia Charalambous
- Assistant Professor

Global Analysis, Analysis on Manifolds.

#### Tasos Christofides

#### Professor

U-Statistics, Probability Inequalities, Sampling, Stochastic Orders.

#### • Cleopatra Christoforou Lecturer

Partial Differential Equations, Applied Analysis, Continuum Physics and Hyperbolic Systems of Conservation and Balanced Laws. Zero Viscosity Method and Shock Waves.

# Pantelis Damianou

Professor

Lie Groups, Hamiltonian Systems, Differential Geometry, and Number Theory.

# Konstantinos Fokianos

#### Associate Professor

Integer-Valued Time Series, Semiparametric Statistics, Analysis of Spatial Data, Analysis of Large Data Sets, Bioinformatics.

# Georgios Georgiou Professor

Numerical Analysis, Numerical Solution of partial differential equations, Numerical simulation of Newtonian and viscoelastic flow, Hydrodynamic stability, Computational Oceanography.

### Andreas Karageorghis

#### Professor

Numerical Analysis, Computational Mathematics, Boundary and Spectral Methods for the Numerical Solution of Differential Equations.

#### Alexandros Karagrigoriou

#### Associate Professor

Statistical Modelling, Model Selection Criteria, Time Series, Bio-Statistics.

# Stamatis Koumandos Professor

Harmonic analysis, Orthogonal polynomials, Special functions, Approximation Theory, Analytic Number Theory.

#### George Kyriazis

Associate Professor

Approximation Theory, Harmonic Analysis.

#### Emmanouel Milakis

#### Lecturer

Partial Differential Equations, Free Boundary Problems, Geometric Measure Theory.

#### Christos Pallikaros

## Associate Professor

Group Representation Theory, Representations of Hecke Algebras.

# • Efstathios Paparoditis

# Professor

Time Series Analysis, Bootstrap Methods, Multivariate Analysis, Non-parametric Statistics.

# • Evangelia Samiou

Associate Professor Riemannian Geometry.

# Theofanis Sapatinas

#### Professor

Functional Time Series Prediction, Estimation and Inference in Functional Mixed – Effects Models, Theory and Practice of Wavelets in Statistics and Time Series, Non-parametric Regression and Inverse Problems.

#### Yiorgos-Socratis Smyrlis

Professor Partial Differential Equations, Numerical Analysis, Fluid Dynamics.

# Christodoulos Sophocleous

#### Professor

Mathematical Physics, Non-Linear Optics and Non-Linear Partial Differential Equations.

### Nikos Stylianopoulos



Numerical Analysis (Numerical Linear Algebra, Numerical Solution of P.D. E's) and Computational Complex Analysis (Conformal Mapping, Approximation in the Complex Plane, Orthogonal Polynomials).

#### Nicolaos Tziolas

Associate Professor Algebraic Geometry.

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# Alekos Vidras

#### Professor

Complex Analysis (Multidimensional Residues, Mean Periodicity), Carleman Formulas, Bohr phenomena.

#### Christos Xenophontos

#### Associate Professor

Numerical Analysis, Computational Mathematics, Numerical Solution of Partial Differential Equations, Finite Element Methods.

# **Contact Details**

# Department Secretariat Tel.: 22892600/3921

Fax: 22895072 http://www.ucy.ac.cy/mas



# **Physics**

The objective of the postgraduate programme in Physics is to promote research and knowledge in the areas of physics. The Department offers postgraduate programmes leading to M.Sc. and Ph.D. degrees in Pure and Applied Sciences.



# **The Objective**

A deep understanding of current and new physical principles comes through the creation of theoretical models and, of course, their experimental verification. The objective target is the combination of all these theories and the understanding of the physical world. The results of these efforts are the promotion of new knowledge, which can be used in order to improve the standard of living. Electronic devices, telecommunications, artificial fibers, lasers and detectors are some of the technological applications. Also, solutions to many problems such as environmental pollution, the discoveries of new energy sources, and the protection from physical catastrophes are found through progress and achievements in fundamental and applied physics.

Postgraduate physics students can be employed in regional industry or in high technology companies; they can become researchers/teachers in research centres/universities; or, they can become teachers in secondary schools.

Since the study of physics not only provides knowledge in the field but also offers a unique and efficient way of solving problems, postgraduate students in physics are usually employed in other disciplines.

# Postgraduate Programme

The Department of Physics offers M.Sc. and Ph.D. degrees in Physics. The student must successfully complete a number of graduate courses with a minimum of 120 credit units (ECTS). Fifty of these ECTS correspond to five mandatory core courses, whereas 10 ECTS correspond to an elective course in the area in which the student will specialise. The remaining 60 ECTS are fulfilled by the successful completion of the M.Sc. thesis.

Postgraduate students in the Doctoral Programme must pass the five (5) compulsory core courses and one (1) specialization course. After the successful completion of these six (6) postgraduate courses, the candidate must pass a comprehensive examination. Candidates must also take at least 40 ECTS in courses in addition to the five (5) core courses. These courses should comprise specialization courses relevant to their field, as well as at least one course outside their area of specialization. The possession of an M.Sc. degree partially or completely exempts students from the required completion of the above 90 ECTS. The final requirement for the Doctorate degree is the submission of an original thesis. After the completion of the thesis, students will defend their work before a fivemember committee.

# **M.Sc. IN PRINCIPLES OF PHYSICS**

The Department of Physics has created an innovative M.Sc. program targeted at high school teachers, called "M.Sc. in Principles of Physics". This is a University-approved program that has been running since 2007. Thirty places are advertised each year.

This program does not lead to a specialization in a particular field. It aims to familiarize students with current developments in a wide range of theoretical and experimental disciplines of Physics, as well as develop their holistic skills, so that they are able to tackle any subject in Physics using fundamental principles and methods. Thus the students will be able to address problems from areas hitherto unknown to them, applying techniques and methods that they have encountered in various fields of Physics. Their undergraduate knowledge will evolve, constituting at the end a solid body of principles, methods and techniques. This program is designed, in particular, for high school teachers who would like to further their versatility in all areas of Physics. No dissertation is required.

# **Research Interests**

The Department accepted its first postgraduate students in 1994. These postgraduate students, in addition to their research activity, have also helped in the organisation of the Department laboratories.

The Department staff participates in research programmes in collaboration with research centres and universities abroad as well as research programmes of the European Community, which are increasing annually. In addition, the Department works with regional industry and other research communities in Cyprus.

The research interests of the Department focus on the following areas:

- Theoretical and Experimental Nuclear Physics
- Theoretical and Experimental High Energy Physics
- Photonic, Lasers and Optoelectronics
- Theoretical and Experimental Condensed Matter Physics
- Theoretical and Computational Biophysics

# **Table of Courses**

	ECTS
Core Courses for Master and Ph.D.	
PHY 625 Quantum Mechanics I	10
PHY 626 Quantum Mechanics II	10
PHY 631 Electromagnetism	10
PHY 641 Statistical Physics	10
PHY 811 Experimental Physics	10

Master	
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Specialization Course	10
PHY 860 Master Thesis I	10
PHY 861 Master Thesis II	20
PHY 862 Master Thesis III	30
Master in Principles of Physics	
PHYS 681 Quantum Physics	10
PHYS 682 Problems in Classical Mechanics	10
PHYS 683 Modern Concepts of Space, Time and	nd Matter 10
PHYS 684 Natural Phenomena	10
PHYS 685 Physics Lab	10
PHYS 686 Electronics	10
PHYS 687 History of Physics	10
PHYS 689 Project	10
PHYS 690 Methodology of Science	10

### Ph.D.

Three Specialization Courses	30
One Course outside the area of specialization	10
PHY 870 Research Stage I	30
PHY 871 Research Stage II	30
PHY 872 Research Stage III	30
PHY 873 Research Stage IV	30
PHY 880 Writing Stage I	15
PHY 881 Writing Stage II	15

# **Course Descriptions**

#### **Core Courses**

#### PHY 625 Quantum Mechanics I

- Charged quantum particle in external Electromagnetic Fields–Gauge transformations – "singular effects" in quantum systems <Aharonor –Bohm type Nanoscopic Systems – Electric Fields and time-dependent Hamiltonians – Landau Levels – Quantum Hall Effect> (and comparisons with Semiclassical behavior)
- 2. Quantum Phenomena (recent double-slit experiments Complementarity Macroscopic Q.M.: Superconductivity)
- 3. The formalism of Q.M. (Dirac formalism, and some "dangers")
- Quantum Kinematics and Dynamics: Symmetries and Generators (invariance under space-time transformations (Galilei) – extraction of dynamical variables – Schrödinger and Heisenberg Pictures – Conservation Laws)
- Position and Momentum Representations (Transfer Matrix Propagators – Green's functions for 1-D transmission problems)
- Harmonic Oscillator (formal relation with other systems, i.e. with Coherent, Squeezed and Intelligent States in Quantum Optics)
- Angular Momentum (Orbital and Spin) (as a follow up of 4. Lie groups and algebra Pauli etc. – Rotation Matrices-Irreducible Tensor Operators – Winger Eckart theorem)
- 8. Systems with Bound States (Central potentials in 2-D and 3-D)

- 9. Time-dependent Phenomena (Spin-Resonance (Rabi oscillations) in two-state systems (rotating-axis representation of Schwinger, Rabi & Van Vleck))
- 10. Adiabatic Approximation Geometric Phases (Berry's phase)

#### PHY 626 Quantum Mechanics II

Potential Scattering: Asymptotic states, scattering amplitude, the integral equation of potential scattering, Born series, cross-sections, the Optical Theorem, partial waves, low energy resonances, analytic properties of the scattering amplitude.

Perturbation Theory: Stationary state perturbation theory, degenerate perturbation theory, time-dependent perturbation theory, first-order transitions, harmonic perturbations, second-order transitions.

Interaction of Radiation with Matter: Interaction Hamiltonian, absorption of light, spontaneous emission, the quantized radiation field, scattering of light, Raman scattering, the quantum vacuum.

Theory of Spin ½: Rotations in spin space, spin magnetic moment, spin resonance, the Pauli equation, relativistic theory, Lorentz transformation of spin, Dirac equation, Dirac hydrogen atom, hyperfine structure, the Lamb shift.

Path Integrals in Quantum Mechanics: The classical action, the quantum-mechanical amplitude, the sum over paths, the free particle propagator, particle in a magnetic field, action function of the classical electromagnetic field, the energy and momentum tensor, evaluation of path integrals, perturbation theory and path integrals, introduction to quantum electrodynamics.

Atoms - Molecules: Two-electron atoms, Hartree, Fermi-Thomas and Hartree-Fock approximations, spin-orbit interaction, Zeeman effect, the Born-Oppenheimer method, the hydrogen molecule.

#### PHY 634 Electromagnetism

Charges in fields, four-potential of a field, Lorentz force, electric and magnetic fields, gauge invariance, the electromagnetic field tensor, Lorentz transformation of the field, invariants of the field, the action of the electromagnetic field, the four-dimensional current vector, Maxwell equations, energy density and Poynting vector, constant fields, electrostatics and magnetostatics, electrostatic energy, dipole moments, magnetic moments, electromagnetic waves, characteristic vibrations of the field, Optics, diffraction, geometrical optics, the field of moving charges, the Lienard-Wiechert potentials, electromagnetic radiation, dipole radiation, radiation from a rapidly moving charge, spectral resolution of the radiation, scattering by free charges, electromagnetic field in continuous media.

#### **PHY 641 Statistical Physics**

From Quantum Mechanics to Statistical Mechanics, coherencedecoherence transition, from the wave function to the density matrix, Ensembles in Statistical Mechanics, the concept of entropy, the role of second law of Thermodynamics, the three basic ensembles (microcanonical, canonical, grand canonical), the partition function, the free energy Helmholtz and Gibbs, energy and density fluctuations, from the Schrodigner equation to the equation of state, the ideal gas in canonical and grand canonical ensemble, the ideal Fermigas, Bose systems, photons and phonons, Bose-Einstein condensation, the principles of Classical Statistical Mechanics, phase space and the Liouville theorem, equipartition theorem, real gases, cluster and virial expansion, phase transitions, the Lee-Yang theory, the Ising model, critical phenomena, order parameter, correlation length, critical exponents, the scaling hypothesis, Goldstone excitations, the Ginzburg-Landau theory, critical and tricritical points, anomalous dimensions, the Kadanoff-Wilson theory, introduction to the renormalization group.

#### PHY 811 Graduate Experimental Physics

#### Part 1: Experiments and Techniques in Nuclear Physics

Introduction to least squares method, elements of nuclear electronics and interaction of charged particles with matter (the TRIM code).

High-Resolution Spectroscopy of --Particles using a surface barrier silicon (Si) detector.

High-Resolution Á-Spectroscopy using an intrinsic high-purity Ge(i) detector.

#### Part 2: Particle Physics Experiments

#### Study of Cosmic Rays:

The purpose of the graduate particle physics experiment is to study the soft component of cosmic radiation at sea level, which is mainly composed of muons. The study proceeds through the measurement of the cosmic ray flux and the muon decay and capture rates in a heavy material (lead). Students will familiarise themselves with some of the methodology and techniques widely used today in particle physics research (detectors, electronics for signal extraction, data acquisition and processing and presentation of the results).

#### Part 3: Experiments in Optotelectronics

Introduction: Introduction to optoelectronics - A brief introduction to optoelectronics. Laser systems – Introduction to various laser systems with emphasis on the ultrafast laser systems. Introduction to fundamental experimental setups in optoelectronics.

Time resolved studies using pulsed lasers: Pulsed lasers with nanosecond resolution, techniques of time resolved analysis, data acquisition system (LabView).

Ultrafast lasers: Self mode-locked lasers, the use of non-linear optical technique to measure pulsewidth from ultrashort lasers, pump-probe techniques.

Fiber optics and Fiber Bragg gratings: Fiber optics (introduction), photosensitivity in optical fibers, fabrication of fiber Bragg gratings, applications of fiber Bragg gratings.

# Part 4: Photothermal and Photoacoustic Sciences and Experimental Techniques

Photothermal and Photoacoustic Sciences. Thermal waves and photothermal and photoacoustic phenomena. Photothermal reflection. Infrared radiometry. Photothermal and photoacoustic spectroscopies. Experimental set-ups. Characterisation of advanced materials. Various applications of photothermal and photoacoustic techniques (Medicine, Chemistry, Archaeometry and Arts).

# **Specialisation Courses**

#### PHY 650 Quantum Field Theory I

The Dirac equation: Relation to the Pauli equation, Solutions of the free equation and their interpretation. The Klein - Gordon equation for a scalar field and its quantization. Quantization of fermions. Quantization of photons. Discrete symmetries C, P, T. The relation between spin and statistics. Interacting fields and their quantization. The S matrix. Relativistic kinematics, Phase space. Covariant perturbation theory. Calculation of crosssections and decay amplitudes in Quantum Electrodynamics, at tree level. Calculation of weak decays. Comparison of Fermi's weak Hamiltonian to the standard model.

#### PHY 651 Ultrashort Laser Pulse Phenomena

Characteristics of femtosecond pulses, femtosecond optics, lightmatter interaction, coherent phenomena, ultrashort sources, femtosecond pulse amplification, pulse shaping, measurement techniques of femtosecond spectroscopy, generation of extreme wavelengths.

#### PHY 652 Fiber Optics and Applications in Telecommunications

Introduction to fiber optics, planar waveguides, fiber optics fundamentals, materials and fabrication of optical fibers and cabling, non-linear phenomena in optical fibers, fiber optics in telecommunications and the revolution of fiber Bragg gratings. Photosensitivity in optical fibers, properties of fiber Bragg gratings, fabrications of Bragg gratings in optical fibers, theory of Bragg gratings in optical fibers, applications of fiber Bragg gratings in telecommunications.

#### PHY 653 Quantum Field Theory II

Radiative corrections in quantum electrodynamics: Introduction to renormalization, magnetic moment of the electron, ultraviolet and infrared divergences in loop diagrams, renormalization of the fermionic field and of the electric charge, LSZ reduction, optical theorem, ward identity. The systematics of renormalization. Dimensional regularization. Perturbation theory to one loop and beyond. Functional guantization: Functional integrals in guantum mechanics and field theory, Connection to statistical mechanics, guantization of fermions and gauge fields. Renormalization a la Wilson, renormalization group: Callan-Symanzik equation, running coupling constant. Non-Abelian gauge theories: Gauge symmetries, Yang-Mills theory, Feynman rules, Fadde'ev-Popov quantization and ghosts, BRST transformation, asymptotic freedom. The standard model: Spontaneous symmetry breaking and Goldstone bosons, Higgs mechanism and mass generation, CKM mass matrix, CP violation. One loop study of the decays of the Higgs particle and the top quark.

#### PHY 654 Ultrafast Spectroscopy of Semiconductors and Semiconductor Nanostructures

Introduction. Coherent spectroscopy of semiconductors. Initial relaxation of photoexcited carriers. Cooling of hot carriers. Phonon and exciton dynamics. Carrier tunneling in semiconductor nanostructures. Carrier transport in semiconductor nanostructures. Monte Carlo simulation of carrier and phonon dynamics. Experimental pump-probe techniques. Luminescence spectroscopy.

#### **PHY 655 Lattice Gauge Theories**

The path integral approach to quantization. Euclidean quantum field theory. Quantum fields on a lattice. Continuum limit and critical behaviour. The free scalar field on the lattice. Fermions on the lattice. Wilson fermions, Kogut-Susskind staggered fermions, Nielsen-Ninomiya theorem. Abelian gauge fields on the lattice and compact QED. Non-Abelian gauge fields on the lattice, compact QCD. Strong coupling expansion. Hopping parameter expansion. Quark-antiquark potential. Glueball spectrum. Phase structure of lattice gauge theory. Weak coupling expansion in scalar theories and in QCD. The continuum limit of lattice QCD. The beta function and asymptotic freedom. Monte Carlo Methods. Numerical simulation and Markov processes. Algorithms: Metropolis, Heatbath, Overrelaxation. Simulation of fermions: Hybrid Monte Carlo, Multiboson algorithms. Deconfinement and chiral phase transition. High temperature phase of QCD.

#### PHY 656 Modern Topics in Theoretical Condensed Matter Physics

#### **Unitary Transformations in Condensed Matter Physics**

- Bose systems: Bogolyubov transformations
- Fermi systems: Cooper pairs and BCS theory of Superconductivity
- Composite particles: Bose-Einstein condensation of Excitons

#### **Electrons in a Magnetic Field**

- Integer and Fractional Quantum Hall Effect
- Two-dimensional electron-hole systems and their hidden symmetries
- Wigner crystal and competitive phases

#### PHY 657 Quantum Many-Body Theory and Applications in Solid State Physics

- Fock space Second Quantization
- Many-particle Green's functions Matsubara formalism
- Linear Response Theories
- Coulomb systems Dielectric formulation Screening
- Phase diagram of Interacting Electrons
- Functional Integrals and Hubbard-Stratonovich transformation: application to Plasmons and Superconductivity (Nambu-Gorkov formalism)

#### PHY 658 Physics of Hot and Compressed Nuclear Matter

- Creation of hot and dense nuclear matter in relativistic heavyion collisions
- Chiral dynamics of Quantum Chromodynamics
- Chiral symmetries
- Breakdown and restoration of chiral symmetry in hot and dense hadronic medium
- Experimental evidence of chiral symmetry restoration in heavyion collisions
- Creation of particles and resonances near to the production energy threshold
- Production of vector mesons in hadronic nuclear medium
- Production and spectroscopy of di-leptons in heavy-ion collisions

#### **PHY 659 Advanced Topics in Nuclear Physics**

- Fundamental building blocks and interactions in the subatomic nucleus
- Creation and interactions of composed nuclear systems
- Chiral symmetry and chiral dynamics in Quantum Chromodynamics (QCD)
- Nuclear reactions
- Production of mesons and resonances
- Particle accelerators and particle detector systems

#### PHY 660 Exotic States of Matter in a Magnetic Field

- Wigner Crystal in 3- and 2- Dimensional Condensed Matter
- Competition with Laughlin Liquid and other Quantum Hall Effect States
- Paired Electronic States and the Passage to Exotic Superconductivity
- Bubble and Stripe Phases in Higher Landau Levels: Recent Experimental Discoveries

#### **PHY 661 Advanced Topics in Particle Physics**

- The Quark-Parton Model
- Deep Inelastic Scattering and Sum Rules
- Weak Interactions
- Gauge Theories in Fundamental Interactions
- Electroweak Unification: The Glashow-Weinberg-Salam Model
- Problems of the Standard Model
- Supersymmetry and Dark Matter

#### **PHY 662 Special Topics in Particle Physics**

- Neutrino Oscillations
- Electron-Positron Collider Physics
- Proton- (Anti)Proton Collider Physics
- Detectors and Methodology for New Particle Searches
- Cosmology and Particle Physics

#### PHY 663 Measurement and Detection Techniques of Nuclear Radiation

- Introduction to nuclear radiation
- Statistical distributions and experimental errors in radiation measurements
- Interaction of nuclear radiation with matter
- Nuclear electronics
- Gas-filled detectors
- Scintillation detectors
- Semiconductor detectors
- Introduction to nuclear spectroscopy
- Determination of activity concentration of radioisotope
- Dosimetry
- Application of nuclear radiation to medicine

#### PHY 664 Statistical and Computational Physics of Biomolecular Systems

#### A. Theoretical topics (5 weeks)

- Elements of protein and nucleic acid structure

- Intra- and intermolecular interactions in biomolecular systems
- Thermodynamics of biomolecular systems
- The effect of solvent on the thermodynamic stability of biopolymers. Implicit solvent models (from liquid state theory and continuum electrostatics)
- Statistical mechanical theories of protein stability and folding

#### B. Computational topics (4 weeks)

- Hamiltonians employed in atomic-detail simulations of biomolecules
- Molecular Dynamics (MD) simulations. Basic concepts (MD algorithms; MD in various ensembles; Langevin dynamics)
- MD simulation methods for the efficient sampling of biomolecular phase space
- Monte Carlo (MC) simulations; General methodology
- MC simulation methods for the efficient sampling of biomolecular phase space
- Protein folding simulations in implicit and explicit solvent
- Free-energy calculations in biomolecular systems Theory and implementation

#### C. Computational applications (3 weeks)

This part is carried out as a set of computational exercises, utilizing specialized software (e.g., CHARMM, UHBD):

- Energy minimization methods and determination of normal modes of vibration in biomolecular systems
- MD simulations in vacuum; Heating, equilibration and production stages
- MD simulations with implicit solvent models
- MD simulations in explicit solvent; periodic boundary conditions; stochastic boundary conditions
- Principal Component Analysis of MD trajectories
- Free-Energy Perturbation calculations; application in biomolecular systems
- Determination of the electrostatic field of a solvated biomolecule by finite-difference solution of the Poisson-Boltzmann equation

#### PHY 665 Quantum Mechanics of Biomolecular Systems: Theoretical and Computational Methods

#### 1. Electronic and vibrational states of molecules

- The Born-Oppenheimer approximation
- Molecular electronic states and potential energy surfaces
- Molecular vibrational states and normal coordinates
- The adiabatic and diabatic representations of the molecular Hamiltonian

#### 2. Quantum mechanics of open systems

(The density matrix formalism for the interaction of a system with a bath)

- The reduced density matrix for a system interacting with a bath
- The bath correlation function
- Quantum master equations
- The Markov approximation and the Redfield equations for the calculation of quantum transition rates within the system
- Numerical examples

# 3. Methods for the computation of the electronic structure of molecules

- Many-electron states
- The Hartree-Fock method
- The density functional method
- Methods based on perturbation theory
- Configuration interaction methods
- Computational examples

#### 4. Applications to biomolecular systems

Charge transfer reactions:

- Marcus and Levich-Dogonadze theories
- Electron transfer pathways in proteins
- DNA electron transfer
- Proton transfer in enzymatic reactions

Energy transfer reactions:

- Relaxation and redistribution of vibrational energy in biomolecules
- Exciton transfer in photosynthesis

#### **PHY 667 Group Theory in Physics**

- Symmetries: Definition, Physical consequences of symmetries, Symmetries in Classical Mechanics and in Quantum Mechanics, Discrete/continuous symmetries, Local/global symmetries
- Finite groups: Reducible representations, Characters, Schur's lemma, Tensor products, Permutation groups, Young tableaux, Crystallographic groups, Brillouin zones in crystals, Energy level splitting in atoms
- Continuous groups: Lie groups, Lie algebras
- Rotation group: Representations in Classical Mechanics, Angular momentum in Quantum Mechanics, Clebsch-Gordan coefficients, Lorentz group and its spinorial representations
- Roots and Weights: Dynkin diagrams, Classification of the classical groups
- SU(N) groups in Particle Physics: Isospin, Hypercharge, Hadronic spectrum, Construction of Grand Unification models
- Supersymmetry: Supersymmetric algebras and groups, applications to the Minimal Supersymmetric Standard Model and to Supergravity
- Infinite dimensional algebras: Virasoro algebra, Kac-Moody algebra - Applications in Conformal Field Theory and in String Theory

#### PHYS 681 Quantum Physics (10 ECTS)

Basic principles of quantum mechanics: linearity and superposition, correspondence of operators and observables, Schrodinger's equation, applications in nontrivial geometries and many dimensions. Perturbation theory, variational method, numerical and graphical solutions in complicated potentials. Nonlinear Schrodinger's equation.

#### PHYS 682 Problems in Classical Mechanics (10 ECTS)

Dimensional analysis, estimates of various quantities, Fermi problems, historical evolution of the principles of physics, principle of least action, principle of minimum potential energy, changes in scale, symmetries, conservation of momentum, Fermat's principle, conservation of angular momentum, conservation of energy, Runge Lenz symmetry in Keplerian orbits, relativity of motion, equivalence principle, discrete symmetries, topology, complementarity of fullness and emptiness, finite and infinite space, phase transitions and their mechanical analogue, solving problems with conservation laws or with forces, the concept of equilibrium, oscillations, coupled systems, nonlinear phenomena, chaos, patterns.

#### PHYS 683 Modern Concepts of Space, Time and Matter (10 ECTS)

Special relativity: problems and philosophical repercussions, matter and space in general relativity, equivalence principle, Mach's principle. Basic concepts of quantum mechanics: wavefunction and its collapse, uncertainty principle, EPR paradox, nonlocal correlations, quantum computers and quantum cryptography, teleportation, stopped light. Quantum fields, virtual particles, the structure of the void.

#### PHYS 684 Natural Phenomena (10 ECTS)

Dimensional analysis, orders of magnitude in everyday life and in physical theories. Explanations of phenomena of everyday life using mechanics, heat, hydrostatics, acoustics, waves, optics, meteorology, electricity. Simple phenomena with complex physical explanations. Some examples are taken from "The flying circus of Physics" by Jearl Walker and from the American Journal of Physics.

#### PHYS 685 Physics Lab (10 ECTS)

A selection of unusual experiments from Classical Physics, Solid State Physics, Laser Physics, Condensed Matter Physics, Nuclear and Particle Physics.

#### PHYS 686 Electronics (10 ECTS)

Introduction to, and elements of, electronic circuits, their physics and applications.

#### PHYS 687 History of Physics (10 ECTS)

Antiquity. Ptolemy. The Middle Ages. Copernicus, Galileo, Kepler, Newton. Classical mechanics, waves, optics, electricity, magnetism, electromagnetism. The collapse of classical physics. Relativity. Quantum mechanics. Field theory and superstrings.

#### PHYS 689 Project (10 ECTS)

Presentation of a contemporary research topic in physics.

#### PHYS 690 Methodology of Science (10 ECTS)

A general introduction to the scientific method through an analysis of the arguments of logical positivists, as well as analysis of the scientific models proposed by Popper, Kuhn and Lakatos. The problem and role of induction in experimental and theoretical physics. The concept of confirmation and falsifiability of scientific theories. The problem of Duhem-Quine: the underdetermination of theory by observations and Einstein's physical insight on this matter. The scientific explanation. Scientific realism/antirealism. The nature and logical structure of scientific theories and scientific models, the relationship between theory and models. Theoretical assertions and experimental reports. The role of models in Physics as a means of bridging the gap between theory and experiment. The difficulties in the unification of theories. The reduction of Thermodynamics to Statistical Mechanics.

# **Research Interests of the Academic Staff**

#### Constantia Alexandrou

#### Professor

Lattice QCD, Variational Methods in Field Theories, Many-Body Systems, Stochastic Techniques for Many-Fermion Systems.

#### George Archontis

#### Associate Professor

Statistical Mechanics of Biopolymers (Proteins and Nucleic Acids) in Solution: Determination of Equilibrium and Dynamical Properties by Atomic-Detail Simulations, Free-Energy Calculations, Structure and Thermodynamic Stability of Biomolecular Complexes, Implicit Solvent Models, Liquid State Theory.

#### Constantinos Christofides

#### Professor

Laser Photothermal Physics and Instruments, Material Sciences, Sensor Devices, Solar Cells and Solar Materials, Solar Energy Applications, Photothermal Applications in Archaeometry and Art.

#### Grigorios Itskos

#### Lecturer

Experimental Condensed Matter Physics, Optical Spectroscopy of Semiconductors, Spintronics, Optical Properties of Semiconductor Nanostructures (Quantum Wells, Quantum Dots, Hybrid Structures of Organic/Inorganic Semiconductors).

#### Konstantinos Moulopoulos

#### Associate Professor

Theoretical Physics of Condensed Matter: Microscopic Theories of Strongly Correlated Systems (Superconductivity, Metal-Insulator Transitions), Electronic Properties in Exotic Potentials (Quasicrystals), Aharonov-Bohm Configurations and Quantum Hall Effect.

#### Andreas Othonos

Associate Professor

Ultrafast Phenomena in Semiconductors, Optoelectronics and Nanotechnology, Semiconductor Devices, Laser Physics, Non-linear Phenomena, Physics of Quantum Information, Fiber Optics and Fiber Bragg Gratings.

# Haralambos Panagopoulos Professor

Quantum Field Theory, Theoretical Particle Physics, Physics of Strong Interactions, Computational Physics.

#### Photis Ptohos

#### Associate Professor

Experimental high energy physics in proton-antiproton and protonproton colliders. Design, construction and calibration of particle detectors, data analysis with emphasis on heavy quark physics (top and bottom) and their connection to the physics of Higgs boson and exotic phenomena beyond the standard model predictions (Supersymmetry, extra dimensions, new dynamics).

#### Panos Razis

#### Professor

Experimental High Energy Physics, Electron-Positron and Proton-Proton Colliders, Particle Detectors, Data Acquisition, Calibration, Supersymmetry, Higgs, Rare Decays, Unification Theories, Cosmology, Medical Physics.

## Spiros Skourtis

#### Associate Professor

Theory of Molecular Electron Transfer Reactions, Chemical and Biological Tunneling Phenomena, Theory of Reaction Rates in Condensed Phases, Protein Structure-Function Relationships, Protein Dynamics-Function Relationships, Molecular Electronics.

#### Stavros Theodorakis

#### Associate Professor

Theoretical Condensed Matter Physics (Bose-Einstein condensates, phenomenology of high temperature super-conductors, phenomenology of superfluid helium). Nonlinear Physics.

#### Nicolaos Toumbas

#### Assistant Professor

Theoretical high energy physics, M/Superstring theories of quantum gravity, black holes, gravity/gauge theory dualities and their holographic interpretation and non-commutative geometry. Applications of non-commutative geometry to condense matter systems with quantum disorder.

#### Haralabos Tsertos

#### Professor

Modern Experimental Nuclear Physics with Heavy lons at Relativistic Energies, Study of the Equation of State of Hot and Dense Nuclear Matter via High-Resolution Dilepton Spectroscopy, Particle Detectors and Monte Carlo Simulation Techniques, Experimental Quantum Electrodynamics (QED) of Very Strong Electromagnetic Fields: High-Resolution Spectroscopy of Positions, Electrons and Á-Rays in Superheavy Ion-Atom Collisions at Coulomb-Barrier Energies, Search for New-Particles and New Phenomena at Low Energies (1-2 MeV range), Environmental and Medical Applications of Nuclear Radiation.

# **Contact Details**

#### Department Secretariat Panagiota Georgiou Tel.: 22892820 Fax: 22892821 e-mail: georgiou.p@ucy.ac.cy http://www.ucy.ac.cy/phy

http://www.ucy.ac.cy/phy

# FACULTY OF SOCIAL SCIENCES AND EDUCATION

LAW

LAW

LAW

LAW

Department of Education (102)

Department of Law (146)

Department of Psychology (148)

Department of Social and Political Sciences (170)

# Education

The Department of Education currently offers ten postgraduate programmes leading to Master and Doctoral degrees in the following areas:

- Educational Administration and Evaluation (Master and Doctoral)
- Curriculum Development and Instruction (Master and Doctoral)
- Pedagogical Sciences
   (Master and Doctoral)
- Mathematics Education (Master and Doctoral)
- Learning in Natural Sciences (Master and Doctoral)
- Didactics and Methodology of Mathematics (Master)(Joint degree programme of the University of Cyprus and the University of Athens)
- Special and Inclusive Education (Master and Doctoral)
- Language Pedagogy (Master)
- Language and Education (Doctoral)
- Inter-departmental and Inter-desciplinary Self-financed Programme in Gender Studies (Master and Doctoral)



# **Postgraduate Programmes**

It is expected that the gradual increase in faculty and administrative personnel will allow additional programmes to be offered, so that a broader spectrum of disciplines in education can be covered.

The programmes are supervised by the Coordinator of Postgraduate Programmes (CPP) of the Department who is appointed by the Chairperson of the Department. The Coordinator chairs a three-member committee, the members of which are also appointed by the Chairperson.

The postgraduate programmes are based on the ECTS system (European Credit Transfer and Accumulation System).

# **Completion of the Master Degree**

The programmes require 90 ECTS for their completion. Students may choose one of the following options:

# Option A (completion of 9 courses)

9 courses X 9 ECTS (81 ECTS) and 3 seminars X 3 ECTS (9 ECTS) = 90 ECTS

# Option B (completion of 7 courses, 3 seminars and dissertation)

7 courses X 9 ECTS (63 ECTS), 3 seminars X 3 ECTS (9 ECTS) and dissertation (18 ECTS) = 90 ECTS

For the completion of their Doctoral Degree students are required to accumulate 240 ECTS.

#### Seminars

The three seminars include lectures which will focus on a specific topic of the discipline.

# **Requirements for the Ph.D. Degree**

All postgraduate programmes in the department require students to successfully complete either 240 or 258 ECTS, distributed as follows:

	ECTS
Three or five courses x 9 ECTS	27 or 45
Research Stages (4 stages x 30 ECTS)	120
Comprehensive Examination	33
Dissertation I	30
Dissertation II	30
Total	240 or 258

In cases where a candidate for the PhD holds a Master degree from our Department, he/she is required to complete three (3) courses (27 ECTS), following recommendation of the Academic Advisor responsible for the postgraduate studies of the programme.

In cases where a candidate for the PhD holds a Master degree from another University, he/she is required to complete five (5) courses (45 ECTS), following recommendation of the Academic Advisor responsible for the postgraduate studies of the programme.

An exception to the above regulation is the programme of Learning in Natural Sciences, where PhD candidates are required to complete five (5) courses (45 ECTS), as follows:

	ECTS
Five courses x 9 ECTS	45
Research Stages (4 stages x 30 ECTS)	120
Comprehensive Examination	33
Dissertation I	30
Dissertation II	30
Total	258

All work beginning with Dissertation III and following receives 0 ECTS.

# **Application for Admission – Evaluation**

For information on the application procedure and the evaluation of the candidates, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat (tel. 22892940/41/42).

In addition to the general requirements, candidates are requested to submit any certificates and/or other documentation that prove English language competency, and any other documentation they consider necessary to strengthen and further support their application for admission, such as articles, research reports, academic distinctions.

# EDUCATIONAL ADMINISTRATION AND EVALUATION

The Graduate programme in Educational Administration has as its basic mission the following:

- (1) to undertake research in the areas of organisation, administration and evaluation in education
- (2) to prepare leadership personnel and researchers who understand the context within which educational organisations operate in a productive and creative way
- (3) to offer services to the wider educational community in the areas of administration, management, leadership, evaluation and school effectiveness

The programme further aspires to create a landscape where all the various disciplines within the cognitive area of educational administration can flourish, such as personnel evaluation in education, school effectiveness, organisational behaviour, programme evaluation, economics of education and productivity and total quality management.

Based on the above, the primary objective of the Postgraduate Programme in Educational Administration is to create the foundations for more effective organisation and administration of schools. Most courses are directly related to the duties and responsibilities of both administrative personnel of the schools (elementary and secondary) and administrators at the Ministry of Education and Culture. At the same time, some of the courses introduce new ideas and current trends in the areas covered by the Programme. It is up to the students to acquire knowledge, new attitudes and research capabilities that will assist them in exercising a dynamic role as educational leaders and researchers of international reputation.

All of the above are applied through a series of courses, seminars and other academic activities that revolve around the Postgraduate Programme in Educational Administration.

# **Structure of the Master Programme**

The programme consists of 90 ECTS which are distributed as follows:

## Option A

63 ECTS in specialization courses + 9 ECTS in common core course + 9 ECTS from the elective courses + 9 ECTS from 3 seminars = TOTAL 90 ECTS

### Option B

54 ECTS in specialization courses + 9 ECTS in common core courses + 18 ECTS for the master thesis + 9 ECTS from 3 seminars = TOTAL 90 ECTS

# **OPTION A**

9 courses X 9 ECTS and 3 seminars X 9 ECTS = TOTAL 90	ECT	S
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E	
Specialisation Courses	63
Compulsory Courses	27
EDU 620 Introduction to Educational Administration* (C,B)	9
EDU 623 Observation and Evaluation of Teaching and Personnel (C.B)	9
EDU 645 Educational Policy (S,A)	9
Elective Courses	36
(Four courses from the following)	
EDU 603 Comparative Education (S,I)	9
EDU 610 Evaluation of Educational Programmes (S,A)	9
EDU 617 Educational Government and the Management of Change	9
EDU 621 Human Resource Development (S,A)	9
EDU 622 Organisation and Administration of Schools (S,A)	9
EDU 624 Planning and Decision Making in Education (S,A)	9
EDU 625 Applications of New Technology in Educational Administration (S,A)	9
EDU 627 Introduction to Innovations in Education (S,A)	9
EDU 628 Education and Multicultural Society (S,A)	9
EDU 629 Instructional Leadership (S,A)	9
EDU 630 Financial Aspects of Education (S,A)	9
EDU 631 School Effectiveness and School Improvement (S,A	) 9
EDU 632 Strategic Planning and Quality in Education (S,A)	9
EDU 634 Principles of Organisation of In-service Programmes (S,A)	9
EDU 635 Organisational Behaviour and Leadership (S,A)	9
EDU 636 Practicum in Educational Administration (S,A)	9
EDU 642 Basic Principles of Measurement and Evaluation in Education (S,A)	9
EDU 648 Professional Development, Promotion and Compensation of Personnel in Education (S,A)	9
EDU 649 Educational Leadership in Europe (S,A)	9
EDU 689 Independent Study (S,S)	9
EDU 690 Seminar: Specialized Topics/Current Trends (S,S)	9
EDU 695 Evaluation of Schools' Performance (S,S)	9
EDU 696 Models of Educational Effectiveness (S,S)	9
EDU 697 Designing Comprehensive Studies for Evaluating School Effectiveness (S,S)	9

Common Core Courses	9
Research	9
(One of the following)	
EDU 681 Advanced Research Methods (S,A)	9
EDU 682 Qualitative Research in Education (S,A)	9
EDU 683 Educational Statistics with Statistical Packages Applications (S,A)	9
EDU 780 Using Basic and Advanced Multilevel Modelling in Educational Research	9
EDU 788 Advanced Research Methods	9
Elective Courses	9
One postgraduate course from any programme or	
postgraduate advisor	9
Seminars	9
EDU 731 Seminar in Educational Administration and Evaluation I	3
EDU 741 Seminar in Educational Administration and Evaluation II	3
EDU 761 Seminar in Educational Administration and Evaluation III	3
TOTAL ECTS	90
* EDU 620 is prerequisite for all courses in Educational Leadership.	

C=Common Core, S=Support, M=Minor, B=Basic Level, I=Intermediate Level, A=Advanced Level, Sp=Specialized Level

#### **OPTION B**

7 courses X 9 ECTS (63 ECTS), 3 seminars X 3 ECTS and Master Thesis (18 ECTS) = TOTAL 90 ECTS

ECTS

Specialisation Courses	54
Compulsory Courses	27
EDU 620 Introduction to Educational Administration* (C,B)	9
EDU 623 Observation and Evaluation of Teaching and Personnel (C,B)	9
EDU 645 Educational Policy (S,A)	9
Elective Courses	27
(Three courses from the following)	
EDU 603 Comparative Education (S,I)	9
EDU 610 Evaluation of Educational Programmes (S,A)	9
EDU 617 Educational Government and the Management	
of Change	9
EDU 621 Human Resource Development (S,A)	9
EDU 622 Organisation and Administration of Schools (S,A)	9
EDU 624 Planning and Decision Making in Education (S,A)	9

EDU 625 Applications of new Technology in Educational Administration (S,A)	9
EDU 627 Introduction to Innovations in Education (S,A)	9
EDU 628 Education and Multicultural Society (S,A)	9
EDU 629 Instructional Leadership (S,A)	9
EDU 630 Financial Aspects of Education (S,A)	9
EDU 631 School Effectiveness and School Improvement (S,A	4) 9
EDU 632 Strategic Planning and Quality in Education (S,A)	9
EDU 634 Principles of Organisation of In-service Programmes (S,A)	9
EDU 635 Organisational Behaviour and Leadership (S,A)	9
EDU 636 Practicum in Educational Administration (S,A)	9
EDU 642 Basic Principles of Measurement and Evaluation in Education (S,A)	9
EDU 648 Professional Development, Promotion and Compensation of Personnel in Education (S,A)	9
EDU 649 Educational Leadership in Europe (S,A)	9
EDU 689 Independent Study (S,Sp)	9
EDU 690 Seminar: Specialized Topics/Current Trends (S,Sp)	9
EDU 695 Evaluation of Schools' Performance (S,A)	9
EDU 696 Models of Educational Effectiveness (S,A)	9
EDU 697 Designing Comprehensive Studies for Evaluating School Effectiveness (S,A)	9
Dissertation	18
EDU 798D Master Thesis I (S,Sp)	9
EDU 799D Master Thesis II (S,Sp)	9
Common Core Courses	
Dessearch	0

Research	9
(One of the following)	
EDU 681 Advanced Research Methods (S,A)	9
EDU 682 Qualitative Research in Education (S,A)	9
EDU 683 Educational Statistics with Statistical Packages Applications (S,A)	9
EDU 780 Using Basic and Advanced Multilevel Modelling in Educational Research (S,Sp)	9
EDU 788 Advanced Research Methods (S,A)	9
TOTAL ECTS	90
TOTAL ECTS Seminars	90 9
TOTAL ECTS Seminars EDU 731 Seminar in Educational Administration and Evaluation I	90 9 3
TOTAL ECTS Seminars EDU 731 Seminar in Educational Administration and Evaluation I EDU 741 Seminar in Educational Administration and Evaluation II	90 9 3 3
TOTAL ECTS Seminars EDU 731 Seminar in Educational Administration and Evaluation I EDU 741 Seminar in Educational Administration and Evaluation II EDU 761 Seminar in Educational Administration and Evaluation III	90 9 3 3 3

# Structure of the Ph.D. Programme

The following are required for the completion of the doctoral programme:

- Master degree in the same or similar subject
- Success in courses totalling 27 ECTS
- Success in a comprehensive examination
- Completion of a doctoral dissertation

The 27 ECTS are fulfilled with courses required for the Master degree, following recommendation of the Postgraduate Programme Coordinator of the department.

In cases where the candidate holds a Master degree in a similar subject or a Master degree which is awarded by a recognised university, the Council of the Department can credit some or all the courses required for the Master degree, following recommendation of the Academic Advisor responsible for the postgraduate studies of the programme.

### **Comprehensive Examination**

The main goal of the Comprehensive Examination is to evaluate the abilities of doctoral candidates to work in a holistic way on the basis of a theoretical context and offer solutions to real-world problems in Education. The Comprehensive Examination consists of four distinct parts. In each part we evaluate the ability of the candidate to synthesize knowledge in order to offer solutions. To be successful, the student must pass all four parts.

For more information on the Comprehensive Examination, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## **General Topics for the Examination**

#### (1) Organisational and administrative theory

- Organisation and administration theories
- Culture and climate in educational institutions
- Leadership theories
- Motivation theories
- · Job characteristics and job-redesign models
- Group dynamics, group work and conflict in educational organisations
- Individual decision-making models
- · Group decision-making models
- Obstacles in decision-making

# (2) Evaluation and effectiveness in education (personnel, programmes, schools)

- Personnel evaluation in educational institutions
- Programme evaluation in educational and other organisations
- Evaluation and school improvement
- School effectiveness (theory practice)

#### (3) Planning and the management of change in organisations

- Strategic planning in educational institutions
- Management of change

#### (4) Economic aspects of education

- Basic principles of economics of education
- Human capital theory
- Budgets and budgeting
- School choice

#### (5) Educational policy

Theoretical concepts and application

# **Course Descriptions**

All courses are credited with 9 ECTS.

#### EDU 603 Comparative Education

Definition and object of comparative education. Presentation of the Cypriot and the Greek educational systems. Description of European models of organisation for education (such as the British, the German, and the French systems). Analysis of the American Educational System. Comparisons, similarities, differences, advantages, disadvantages, conclusions.

#### **EDU 610 Evaluation of Educational Programmes**

The evaluation of educational programmes as an institution and as a process. Analysis of several evaluation models (Stufflebeam, Popham, Borich, Provus, Scriven, etc.), with reference to specific programmes at the macro-level (educational system) and the micro-level (school unit). Types of evaluation (continuous, developmental, formative, summative). Description of approaches and study of the instruments used in evaluation at both the theoretical and the applied levels, in the context of accountability of educational systems and educational institutions.

#### EDU 617 Educational Government and the Management of Change

Governance and distribution of power in education. Participation of stakeholders in school administration. The role of teachers, parents and the community. The nature of change in education. The process of designing and implementing change in education. Resistance to change and ways of managing it. The role of the leader in the management of change. Characteristics required for the effective management of change.

#### EDU 620 Introduction to Educational Administration

General introduction to concepts and theories necessary for the study of organisations. Topics included are: leadership, decision-making, organisational climate, communication, effectiveness and the management of change. The nature of organisational life and organisational behaviour are explored. The school as a so-cial system is examined as well as the external and internal factors which affect the schools and the educational system in general.

#### EDU 621 Human Resource Development

The human factor and its importance for an organisation. Ways and means for motivation of human resources. Inservice and employee development through job design. Human behaviour in groups. Communications, group dynamics, group effectiveness and group formation.

#### EDU 622 Organisation and Administration of Schools

Analysis of basic duties and responsibilities of school principals. Description of methods for planning and decision-making at the school level. Effective schools research and the involvement of school principals in the formation of an effective school. Educational laws for the organisation and administration of schools.

#### EDU 623 Observation and Evaluation of Teaching and Personnel

Presentation and analysis of the logic of observing, analyzing and evaluating teaching and school personnel. Specific instruments, models, and methods for the observation and evaluation of teaching will be presented. Focused observation instruments will also be presented for specific areas of observation (such as school climate, teaching process, teaching methods and styles, academic progress of students).

#### EDU 624 Planning and Decision Making in Education

Basic functions of an educational leader: planning and decisionmaking. Educational planning at the macro and micro level. Basic techniques and process of planning. The preparation of one-, two- and three-year plans for the individual school. Decision-making models and processes, simulations in decision-making, impact of decisions on the organisation.

#### EDU 625 Applications of New Technology in Educational Administration

Educational technology products which support the work of an educational leader. Technology products which are now available or are up and coming for the near future. Special reference will be made to computers and software available as well as methods for the evaluation of software.

#### EDU 627 Introduction to Innovations in Education

Analysis of the concept of educational change and the introduction of innovations in education. The study of the individual school as the main vehicle for the introduction of change and innovations. Theories of organisational change and resistance to change in educational organisations.

#### EDU 628 Education and Multicultural Society

Critical examination of current social issues and their relation to teaching. Race and ethnic relations, socio-economic groups, special interest groups, and advocacy. Conflict resolution among the various stakeholders in education.

#### EDU 629 Instructional Leadership

Theoretical perspectives on Instructional Leadership. The role of the school principal and other educational leaders in establishing and sustaining a culture of teaching and learning. The school as a learning community.

#### **EDU 630 Financial Aspects of Education**

Examination of ways to implement public financial management with regard to education. Taxes and taxation in education. Direct and indirect taxation in educational issues. Presentation of specific budgeting models such as PPBS, MBO, Zero-base budgeting, incremental budgeting.

#### EDU 631 School Effectiveness and School Improvement

The course focuses on two main units. The first unit examines the major findings of international research in the field of school effectiveness, and general effectiveness-enhancing factors are analysed. The following three disciplinary backgrounds to educational effectiveness modelling are discussed: a) the economic approach, focused on "education production functions", b) the educational psychological approach to effective instruction and learning conditions, and c) the generalist-educationalist approach to integrated, multilevel school effectiveness modelling. Major issues of school effectiveness research such as the size, stability, consistency and scope of school effects are discussed. Theories on school, organisational, and instructional effectiveness are examined and implications for the development of school effectiveness research are drawn. The second unit is an attempt to draw on what is known about managing change and school effectiveness and to apply this knowledge to practical development activities in schools. Thus, the contribution of school effectiveness research to school improvement is examined and the strengths and weaknesses of both fields of educational research are identified. Special emphasis is given to the development of research projects attempting to use insights from effectiveness and improvement research to managing the process of ongoing development.

#### EDU 632 Strategic Planning and Quality in Education

Quality and accountability issues in education and their relationship to strategic planning. Why planning is important and the relation between planning and TQM in education.

#### EDU 634 Principles of Organisation of In-Service Programmes

The concept of total quality in the development of in-service programmes. The goal-setting and experiential process of the development of in-service programmes. Research around action and reflective thinking. Mentors and student teaching. Systems for the support of in-service personnel.

#### EDU 635 Organisational Behaviour and Leadership

Organisational behaviour and motivation theories. Leadership, trait-theory and social making approaches. Goals and work relations within groups. Evaluation of effectiveness and rewards. Communication, creation of good working relationships within the organisation. Organisational climate and its importance. General survey of main theories in educational leadership such as: Trait, situational approaches with emphasis on the Hersey and Blanchard Life Cycle Theory, Blake and Muton, Terry's Diamond, Transformational leadership, Fiedler, Tichy, Devanna. Examination of variables involved in situation approaches to leadership.

#### EDU 636 Practicum in Educational Administration

Observation of administrative personnel in educational institutions either on a part-time or full-time basis. Shadowing with special emphasis on organisational and administrative functions under real conditions.

#### EDU 642 Fundamentals of Measurement and Assessment in Education

Forms of validity and reliability; Methods for measuring construct validity; Classical Test Theory; Item Response Theory Models: One-parameter logistic model, Two-parameter logistic model, Three-parameter logistic model, Nominal response IRT model, Graded response IRT model; Ability and Item Parameter Estimation; Assessment of Model Data Fit; Methods for Identifying Biased Test Items: Item Bias Indices based on Classical Test Theory, IRT Methods for Detecting Differential Item Functioning; Test Score Equating; Computer-Based Adaptive Testing.

#### **EDU 645 Educational Policy**

A study of the concept of educational policy and the knowledge base for decision making in this area. Examination of the factors influencing policy decisions at the macro and micro level. Discussion of important topics associated with policy decisions in the international scene, such as: school success and failure, access to education, school effectiveness, vocational education, and marketization. Investigation of contemporary educational policy issues in Cyprus.

#### EDU 648 Professional Development, Promotion and Compensation of Personnel in Education

Motivation and job satisfaction in education. Promotion plans and career ladders. The role of monetary and non-monetary rewards in motivating personnel. Motives, rewards and school effectiveness. Alternative compensation plans and merit pay. Factors influencing educational policy in relation to professional development, compensation and promotion.

#### EDU 649 Educational Leadership in Europe

This course is for those who are in, or aspire to be in, leadership posts in pre-school, primary, secondary or tertiary educational organisations in Europe or for those from outside Europe who wish to gain an understanding of European approaches to the management and leadership of educational organisations. It will be of value to those who teach and lead in schools or colleges and to those who govern such organisations at the local, regional, national or international level or who work in nongovernmental educational organisations. This is a self-study course. Each of its aspects offers information, discussion and activities to enable students to participate in a productive way. These aim to guide students through the principal learning points and to reinforce what students gain from the reading.

#### EDU 681 Advanced Research Methods

Joint distributions. Sources of misleading correlation coefficients. Correlations and causality. Linear regression. Prediction and interpretation of the components. Errors in prediction. Standard error of estimate. Interpretation of the standard error. Statistical inference in behavioural research. Multiple regression. Purpose and underlying logic. Interpretation of multiple regression findings.

#### EDU 682 Qualitative Research in Education

This course consists of four major parts. The first part examines the philosophical underpinnings of qualitative and quantitative research and compares their main ontological, epistemological, and methodological beliefs. It also looks at various theoretical traditions and orientations within gualitative research such as ethnography, phenomenology, case study, participatory action research, and critical theory. The second part focuses on issues related to the design of qualitative research, including the role of theory, the type of research questions that can be addressed by qualitative research, the use of conceptual maps, the "emergent design" approach, the role of the researcher in qualitative research, and purposive sampling; also discussed are issues such as negotiating access to the field, establishing rapport, obtaining informed consent, as well as ethical considerations. The third part of the course focuses on the major methods of data collection in gualitative research: in-depth interviewing, observations, and documentary analysis. Techniques for analyzing qualitative data are then considered, with special emphasis on grounded theory and the "constant comparative method"; the application of software for analyzing qualitative data (e.g., Atlas.ti) is also presented and discussed. The last part of the course considers ways of presenting and justifying gualitative studies, as well as several criteria for judging the quality of such studies (e.g., credibility, transferability, confirmability, and authenticity).

#### EDU 683 Educational Statistics with Applications of Statistical Packages

This course consists of two major units. The first unit introduces students to the fundamental concepts and ideas in quantitative research, including the philosophical underpinnings of quantitative research (and their differences from those of qualitative research), the main stages involved in conducting and reporting a quantitative research study, and basic terms and concepts used in statistics. The second unit focuses on the use of the statistical package SPSS for analyzing quantitative data. This unit begins with basic commands for data manipulation (e.g., recode, compute), and then shifts to specific techniques for data analysis, including descriptive statistics, correlation analysis, inferential statistics (both parametric and non-parametric criteria), analysis of variance (one-way ANOVA, two-way ANOVA, MANOVA and repeated MANOVA), exploratory factor analysis, and simple and multiple regression analysis. Throughout this unit, students are given ample opportunities to determine the most appropriate technique to apply to various, specific research questions; to use these techniques to analyze actual data; to interpret the output yielded from these analyses; to draw valid inferences. The course is also designed to enable students to become critical consumers of research studies in which such techniques have been used to analyze quantitative data.

#### **EDU 689 Independent Study**

Students choose a topic of personal interest and prepare an extensive paper under the supervision of an academic staff member who specializes in the student's area.

#### EDU 690 Seminar: Specialized Topics/Current Trends

In this seminar, there will be presentations of current issues and trends in the broad area of Educational Leadership and Curriculum Development.

#### EDU 695 Evaluation of Schools' Performance

External and internal forms of school evaluation; Political dimensions of school evaluation; School self-evaluation and school improvement; Value assumptions of School Self-evaluation; Methodology and Procedural dilemmas of school self-evaluation; Research into school self-evaluation; Integrating school selfevaluation with external forms of evaluation.

#### EDU 696 Models of Educational Effectiveness

Different approaches to educational effectiveness modelling; Education Production Function Models; The educational psychological approach to educational effectiveness modelling: Carroll's and Walberg's model; The Integrated Multilevel Educational Effectiveness models: Scheerens' model, QUAIT/MACRO model, the comprehensive model of educational effectiveness; Research on models of educational effectiveness: Main findings and methodological issues; The importance of establishing dynamic models of effectiveness; Using models of effectiveness for school improvement purposes.

#### EDU 697 Designing Comprehensive Studies for Evaluating School Effectiveness

The significance of establishing mechanisms for measuring educational effectiveness; Designs of educational effectiveness studies based on Mixed Research Methods; Multi-level approaches in designing educational effectiveness studies; Possibilities of developing comprehensive models of teacher and school effectiveness; Methodological issues associated with the validation of comprehensive models of teacher and school effectiveness through systematic longitudinal studies.
#### EDU 780 Using Basic and Advanced Multilevel Modelling in Educational Research

Multilevel theories, Multi-stage sampling and Multi-level models; The Random intercept model; The hierarchical linear models; Testing and model specification; Assumptions of the hierarchical linear models; Designing Multilevel studies; Crossed random coefficients; Multivariate multilevel models; Non-linear multilevel models; Binary response models; Multilevel logistic regression; Random slope multilevel logistic regression models; Multilevel Factor Analysis and Multilevel structural equation models.

#### EDU 788 Advanced Research Methods

Research design, Review of Regression Analysis, basic functions of Structural Equation Modelling, Review of Exploratory Factor Analysis, Confirmatory Factor Analysis (First-order CFA model, CFA models with Higher-Order factors), The Multitrait-Multimethod model, The Full Latent Variable model, Growth Modelling, Logistic Modelling, Multiple-Group Analyses (Testing for invariant factorial structure of a theoretical construct, Testing for invariant latent mean structure, Testing for Invariant Causal Structure), Item Response Theory, Rasch measurement models (The dichotomous Rasch Model, Partial Credit Model, Rating scale analysis), Multiple Group IRT theory.

# **Contact Details**

#### **Programme Coordinators**

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# CURRICULUM DEVELOPMENT AND INSTRUCTION

The objectives of the postgraduate programme in Curriculum Development and Instruction are the following:

- 1. Research in curriculum planning, curriculum development and curriculum evaluation, instructional analysis and evaluation, teacher education, development and evaluation.
- 2. Promotion and development of curriculum and teaching theories, as well as the philosophical, sociological and epistemological principles and discourse on curriculum studies.
- Promotion and development of the collaboration with European programmes and with universities and research centres all over the world on curriculum studies.
- Upgrading studies, knowledge and research on curriculum issues, teaching and learning, and teacher development.
- 5. Empowerment and cultivation of leadership in the areas of curriculum development and evaluation, curriculum and instructional discourse, and teacher development and evaluation.
- 6. Educational leadership services in Cyprus, and the European Union, as well as in the broader international scientific and educational society.

In the context of the above objectives students have the opportunity to develop their own individual programme of studies on the basis of their particular needs and interests.

# **Structure of the Master Programme**

The programme consists of 90 ECTS which are distributed as follows:

#### Option A

63 ECTS in specialization courses, 9 ECTS in common core courses, 9 ECTS from the free elective courses and 9 ECTS from 3 seminars. With permission of the student's postgraduate advisor, one or two specialization courses, common core courses or free elective courses can be replaced with courses in other postgraduate programmes of the University of Cyprus.

#### Option B

54 ECTS in specialization courses, 9 ECTS in common core courses, 18 ECTS for the dissertation and 9 ECTS from 3 seminars.

## **OPTION A**

EC	ΓS
Specialisation Courses 6	53
Compulsory Courses 2	27
EDU 612 Models of Curriculum Evaluation (C,B)	9
EDU 640 Basic Principles and Processes of Curriculum Development* (C,B)	9
EDU 693 Advanced Methods of Teaching and Learning (C,B)	9
Elective Courses 3	36
(four courses from the following)	
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 599 Gender Theories and the Politics of the Curriculum	9
EDU 603 Comparative Education (S,A)	9
EDU 604 Curriculum Leadership (S,A)	9
EDU 605 Postmodernity and Education: Theory and Praxis (S,A)	9
EDU 606 Educational Policy and Curriculum Development (S,A)	9
EDU 607 The Social Discourse on Curriculum Development (S,A)	9
EDU 608 Critical Discourses on Teacher Development (S,A)	9
EDU 609 Curriculum in a Multicultural Society (S,A)	9
EDU 611 Curriculum Theory (S,A)	9
EDU 613 Specialised Topics and Contemporary Trends (S,A)	9
EDU 614 Informal Curriculum and Mass Media (S,A)	9
EDU 623 Observation and Evaluation of Teaching and Personnel (S,A)	9
EDU 626 Programme and School Evaluation (S,A)	9
EDU 627 Introduction to Innovations in Education (S,A)	9
EDU 631 School Effectiveness and School Improvement (S,A)	9
EDU 633 European Dimension of Education (S,A)	9
EDU 634 Principles of Organisation of In–service Programmes (S,A)	9
EDU 642 Basic Principles of Measurement Evaluation in Education (S,A)	9
EDU 643 Application of New Technology in Curriculum Development (S,A)	9
EDU 644 Development and Evaluation of Educational Texts and Materials (S,A)	9
EDU 654 History of Education (S,A)	9
EDU 689A Independent Study (S,A)	9
EDU 690 Seminar: Specialized Topics/Current Trends (S,Sp)	9

EDU 691 Seminar in Curriculum Development (S,Sp)	9
EDU 699 Conflict and Collaboration – Critical Analysis (S,Sp)	9
EDU 781 Classroom Discourse Analysis and Quality of Teaching (S,Sp)	9
Common Core Courses	9
Research	
EDU 681 Advanced Research Methods (S,S)	9
EDU 682 Qualitative Research in Education (S,S)	9
EDU 683 Educational Statistics with Statistical Packages Applications (S,S)	9
Elective Courses	9
(Upon permission of the student's postgraduate advisor)	
EDU 601 Philosophical Aspects of Education (S,I)	9
EDU 618 Sociological Aspects of Education (S,I)	9
PSY 610 Psychological Aspects of Education (S,I)	9
With permission of the student's postgraduate advisor, one or two specialization courses, common core courses or free elective courses car replaced with courses in other postgraduate programmes of the Univers of Cyprus.	ı be sity
Seminars	9
EDU 730 Seminar in Curriculum and Instruction I	3
EDU 740 Seminar in Curriculum and Instruction II	3
EDU 760 Seminar in Curriculum and Instruction III	3
TOTAL ECTS	90

\* The course EDU 640 is prerequisite for all Courses in Educational Curriculum Development

C=Common Core, S=Support, M=Minor, B=Basic Level, I=Intermediate Level, A=Advanced Level, Sp=Specialized Level

# **OPTION B**

7 courses X 9 ECTS (63 ECTS) +3 seminars X 3 ECTS (9 ECTS) + Dissertation (18 ECTS) = TOTAL 90 ECTS

E	CTS
Specialisation Courses	54
Compulsory Courses	27
EDU 612 Models of Curriculum Evaluation (C,B)	9
EDU 640 Basic Principles and Processes of Curriculum Development* (C,B)	9
EDU 693 Advanced Methods of Teaching and Learning (C,I	3) 9
Elective Courses	27
(three courses from the following)	
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 599 Gender Theories and the Politics of the Curriculur	n 9
EDU 603 Comparative Education (S,A)	9
EDU 604 Curriculum Leadership (S,A)	9

EDU 605 Postmodernity and Education: Theory and Praxis (S.A)	9
EDU 606 Educational Policy and Curriculum Development (S,A)	9
EDU 607 The Social Discourse on Curriculum Development (S,A)	9
EDU 608 Critical Discourses on Teacher Development (S,A)	9
EDU 609 Curriculum in a Multicultural Society (S,A)	9
EDU 611 Curriculum Theory (S,A)	9
EDU 613 Specialised Topics and Contemporary Trends (S,A)	9
EDU 614 Informal Curriculum and Mass Media (S,A)	9
EDU 623 Observation and Evaluation of Teaching and Personnel (S,A)	9
EDU 626 Programme and School Evaluation (S,A)	9
EDU 627 Introduction to Innovations in Education (S,A)	9
EDU 631 School Effectiveness and School Improvement (S,A)	9
EDU 633 European Dimension of Education (S,A)	9
EDU 634 Principles of Organisation of In-service Programmes (S,A)	9
EDU 642 Basic Principles of Measurement Evaluation in Education (S,A)	9
EDU 643 Application of New Technology in Curriculum Development (S,A)	9
EDU 644 Development and Evaluation of Educational Texts and Materials (S,A)	9
EDU 654 History of Education (S,A)	9
EDU 690 Seminar: Specialized Topics/Current Trends (S,Sp)	9
EDU 691 Seminar in Curriculum Development (S,Sp)	9
EDU 699 Conflict and Collaboration – Critical Analysis (S,Sp)	9
EDU 781 Classroom Discourse Analysis and Quality of Teaching (S,Sp)	9
Dissertation	18
EDU 798C Dissertation I (S,Sp)	9
EDU 799C Dissertation II (S,Sp)	9
Common Core Courses	9
Research	
EDU 681 Advanced Research Methods (S,A)	9
EDU 682 Qualitative Research in Education (S,A)	9
EDU 683 Educational Statistics with Statistical Packages Applications (S,A)	9
Seminars	9
EDU 730 Seminar in Curriculum and Instruction I	3
EDU 740 Seminar in Curriculum and Instruction II	3
EDU 760 Seminar in Curriculum and Instruction III	3
TOTAL ECTS	<b>90</b>
The course EDU 640 is prerequisite for all Courses in Educational Curriculum Development	

# Structure of the Ph.D. Programme

For information on the structure of the Ph.D. Programme, see relevant paragraph above.

# **Comprehensive Examination**

The comprehensive examination evaluates the ability of candidates to synthesize theories and assumptions in a theoretical framework, which enables them to work on problem solving situations and reflect creatively on curriculum issues under consideration.

For more information on the Comprehensive Examination, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

# **General Topics for the Examination**

# (1) Principles and procedures of curriculum development: course design

- Models and paradigms of curriculum development
- Curriculum development at the macro-level
- Curriculum development at the micro-level
- Structure and sequence of the curriculum
- Hidden curriculum

#### (2) Curriculum theory

- Critical discourse on curriculum aims and objectives, content, evaluation and assessment, methods of implementation, curricular material, teaching and learning
- Functionalism
- Foucaultian discourse
- Critical pedagogy
- Critical theories
- Curriculum development in context
- Social discourse and controlling curricular forms
- Philosophical and psychological foundations of the curriculum
- Postcolonial theory and the curriculum
- Gender theories and Curriculum studies

#### (3) Learning and instruction: curriculum as praxis

- Constructivism, modern and postmodern
- Teaching and learning as student and teacher conceptual change
- Textbooks: writing and evaluation
- Metacognitive development
- Cooperative learning

- Differentiation of teaching and learning in mixed ability classrooms
- Teachers and students as biographies
- Methods of teaching and learning in context
- Assessment and evaluation
- Critical discourse on "effective teaching"

#### (4) Teachers and curriculum studies

- Curriculum leadership
- Teacher development in the context of critical pedagogy
- Models and paradigms of teacher development: the instrumental-technical model vs. the criticaldevelopmental paradigms
- Teacher development in context
- Action Research and teacher development
- Teacher development in the context of phenomenography, conceptual change, and postmodernity
- Teachers' theories and beliefs

#### (5) Educational policy and curriculum development

- Theories of educational change and consensus
- Reforms in education
- National standards and curriculum development
- National and multicultural programmes and curricula
- European educational policy
- Accountability in education

# **Course Descriptions**

All courses are credited with 9 ECTS.

#### EDU 598 Postcolonial Theory and the Curriculum

Post-Colonialism or Postcolonialism? Introduction to the 'postcolonial' as an ambivalent concept (the critique of colonialism and cultural hegemony implicates the risk of periodizing colonialism and reifying the critique of cultural hegemony). Histories of curriculum development are revisited from two perspectives: the historicism which projected Europe as the subject of History and Orientalism as an exemplary model of othering and discursive intertwining of knowledge and power. The productive-positive function of power is investigated in regard to colonial education and the interpellation of colonial subjects. The historical overlappings of theories of race, evolutionism, civilizing missions and education are analyzed, and the infiltration of the curricula by such theories is exposed, both in regard to the colonies and the metropolis. Possible foci of inquiry: the colonial genealogy of the literary canon; indigenization of the native 'other'; curricula in the service of the civilizing mission; anti-colonial struggles and the war over the curriculum; the emergence and claims of national curricula. Resistance in the postcolonial condition: 'the Empire writes back', Diaspora vs. nativism, hybridity vs. authenticity of voice, in-betweeness vs. locality.

#### EDU 599 Gender Theories and the Politics of the Curriculum

Review of theories of gender. Critical genealogies of theories of gender and the gendering of the curriculum. Theories of gender in a historical context and their intertwinings with other dominant discourses such as nationalism, evolutionism and the civilizing potential of education. Gender norms: the normalization of sexual identities (femininities and masculinities), the nature of learning and the construction of knowledge. The reception of gender theories by curriculum theory (epistemologies, theories of learning, teacher and student identities) and their impact on the gendering of learning material, policies of exclusion, teacher education, gender relations. Introduction to feminist epistemologies, gender sensitive curricula, curriculum reforms and the politics of difference and equity.

#### EDU 601 Philosophical Aspects of Education

The relationship between philosophy and education is analyzed in-depth. The educational significance of concepts relating to rationality, language, morality and subjectivity in cultures is discussed. Specifically, the following are analyzed: the binary oppositions which define various evaluations of knowledge and its acquisition, the prototypes reproduced by educational systems, and the renewal of cultural and interpretive material such as theory and practice, public and individual domain, autonomy and heteronomy, truth and falsehood.

The fundamental topics for discussion include the definition of philosophy, its relationship to education, the analysis of the meta-theoretical justification of the pedagogical act and the diverse interpretations which dictate specific educational positions. The aim is to achieve a critical assessment of the production and transmission of knowledge in the context of existing teaching practices.

#### **EDU 603 Comparative Education**

See course description above.

#### EDU 604 Curriculum Leadership

Theories and research on the construction of the concept of curriculum leadership. The School Reform Movement and the meaning of change in schools. Connecting action research to genuine teacher development. The instrumental-bureaucratic and the critical-developmental leadership paradigm in education. Critical pedagogy and the concept of curriculum leadership. Teacher development in context: meta-modernity, phenomenography and conceptual change.

#### EDU 605 Postmodernity and Education: Theory and Praxis

Modern and postmodern theories in education. Emphasis on functionalism, deconstructive approaches, Foucaultian discourse, critical pedagogy and their impact on the concept, the construction, and the role of the curriculum. The postmodern perspective on curriculum discourse.

#### EDU 606 Educational Policy and Curriculum Development

Curriculum as a social, political and ideological document. The rationale and procedures of educational reforms according to the rational-technocratic and the critical-phenomenological paradigms. National standards, accountability and effectiveness of the educational system. National, globalised and multicultural policy. Teacher evaluation and development through teacher research. European educational policy and its impact on current educational issues in Cyprus.

#### EDU 607 The Social Discourse on Curriculum Development

Critical approach to social theories on the construction and the results of school curriculum. The rhetoric of school reform and its effects on teacher development: Issues of power, expertise and commitment. Teaching as a profession of values. Controlling forms of curriculum. The hidden curriculum, deskilling teachers and the logic of technical control through curriculum forms.

#### EDU 608 Critical Discourses on Teacher Development

Critical discourses on teacher development. Theories, methods and processes for teacher development. Teacher beliefs, cultural models and implicit knowledge. Critical teacher development in the postmodern age. Research on teacher development in context. Action Research and reflective teachers.

#### EDU 611 Curriculum Theory

Theory and critical approach towards the curriculum aims and objectives, the context/subject matter forms of knowledge and experience, methods as the mode of curriculum delivery, assessment and evaluation. Investigation and discourse of functionalism, Foucaultian criticism, critical pedagogy and radical paradigms. Historical development of curriculum, social, political, epistemological and psychological theory and practice. Forms of curricula according to modern and postmodern paradigms.

#### EDU 612 Models of Curriculum Evaluation

The aim of this course is to enable students to understand the increasing importance of evaluation on curriculum development and the theoretical principles underpinning a range of evaluation models. The models, techniques, and procedures of curriculum evaluation; the purposes of evaluation in curriculum development; the key questions to be addressed in writing an evaluation strategy; cultural and ethical issues in evaluation; the evaluation report; how to use the results of evaluation to inform curriculum design.

#### EDU 613 Specialised Topics and Contemporary Trends

New topics and trends in Curriculum development and evaluation, teaching and learning, development of teachers, schools and education.

#### EDU 614 Informal Curriculum and Mass Media

Research on the role of mass media for the production of the informal curricula; the hidden value of the informal curriculum; the relationship between formal and informal curricula; theories of information processing through mass media and the resistance of the person; contemporary trends and issues on the control of mass media.

#### EDU 618 Sociological Dimensions of Education

The course examines classic issues in the sociology of education through the lens of structural and micro perspectives as well as through the lens of critical theory. Analysis of the socio-political and cultural role of schooling through issues such as social inequality, school failure, alienation, culture and taste, ideology and knowledge. Critical juxtaposition of theory and research, analysis of educational problems through the reality of everyday school life and the practices of social groups.

#### EDU 626 Programme and School Evaluation

Programme evaluation as an institution and as a process. Critical presentation and analysis of evaluation models such as Stufflebeam, Popham, Borich, Provus, and Scriven models. Formative and summative evaluation. Specific mention of particular programmes at the macro and micro levels. Ways of analyzing and evaluating school improvement and the evaluation of schools as the main unit of instruction and curriculum development.

#### EDU 627 Introduction to Innovations in Education

See course description above.

#### EDU 631 School Effectiveness and School Improvement

See course description above.

#### EDU 633 European Dimension in Education

The concept of Europe and the European Union and its citizens. Values in a United Europe: individuality and being different, acceptance and interaction, programmes for the exchange of experiences: philosophy and practice. Learning in the information society: education and life-long learning. The European dimension in school texts. Europe and the "other".

#### EDU 634 Principles of Organisation of In-Service Programmes

See course description above.

#### EDU 640 Basic Principles and Processes of Curriculum Development

The curriculum as product and praxis. The concept of curriculum development at the micro and macro level. Intervention programmes in education. Models for curriculum development. Parameters and factors affecting curriculum programmes.

#### EDU 642 Fundamentals of Measurement and Assessment in Education

See course description above.

#### **EDU 654 History of Education**

Education and curricula in the pre-industrial, the industrial and the technological era; pre-modern, modern, late modern and post-modern assumptions and interpretations; interrelation of social, economic, political and ideological considerations; globalisation and education; the Lisbon strategy and the European Union. The role of the history of education today.

#### EDU 681 Advanced Research Methods

See course description above.

#### EDU 682 Qualitative Research in Education

See course description above.

#### EDU 683 Educational Statistics with Statistical Packages Applications (SPSS)

See course description above.

#### EDU 689 Independent Study

Students choose a topic of personal interest and prepare an extensive paper under the supervision of an academic staff member who specializes in the student's area.

#### EDU 690 Seminar: Specialized Topics/Current Trends

In this seminar, there will be presentations of current issues and trends in the broad area of Educational Leadership and Curriculum Development.

#### EDU 693 Advanced Methods of Teaching and Learning

Constructivisms, modern and postmodern. Learners as information processors. Theories of conceptual change. Sociocultural theories on teaching and learning. Methods of teaching and metacognitive development. Forms of learning and metacognition. Cooperative learning, individualized instruction and differentiation of teaching and learning.

#### EDU 699 Conflict and Collaboration: Critical Analysis

Aspects of conflict in the societal and educational setting; interpretation according to the traditional, the human relations and the interactionist view; the debate on functional and dysfunctional conflicts; conflicts based on values and interests; methods of conflict resolution, cooperation and collaboration.

#### EDU 781 Classroom Discourse Analysis and Quality of Teaching

Multiple Perspective Analysis of Classroom Discourse; Ethnography and Language in Educational Settings; Sociosemiotics and Education; Power and control in classroom discourse analysis; Inequality and classroom discourse; Learning and discourse analysis.

## **Contact Details**

Programme Coordinators Mary Ioannides-Koutselini Professor Tel.: 22892959 e-mail: edmaryk@ucy.ac.cy

Stavroula Philippou Lecturer Tel.: 22892986 e-mail: philippou.stavroula@ucy.ac.cy

# MASTER DEGREE IN PEDAGOGICAL SCIENCES

# Aim of the Programme

This postgraduate programme offers education specialists and professionals involved in education the opportunity to undertake specialized studies in the pedagogical sciences. Those who complete the programme to earn a master degree are well-placed in the field of education to pursue a variety of careers; alternatively, they may continue their studies to doctoral degree level and pursue an academic or research-oriented career.

# **Structure of the Master Programme**

Successful completion of 90 ECTS is required. More specifically, this entails 9 courses x 9 ECTS (81 ECTS) and 3 seminars x 3 ECTS. Students choose one of seven areas in which to concentrate and must take four courses in that area. The programme structure is as follows:

- One Course in Educational Research (9 ECTS)
- Three Common Core Courses (27 ECTS)
- Four Courses from one of the following areas: Religious Education; Sociology of Education; Preschool Education; Theory and Philosophy of Education; Physical Education; Cultural Dimensions of Education; Educational Technology (36 ECTS)
- One Elective Course from the Postgraduate Programme of the Department (9 ECTS)
- Three Seminars (9 ECTS)

Note: Students who choose to write a Dissertation (18 ECTS) may be exempted from one core course and one elective course.

#### Common Core Courses (27 or 25.50 ECTS)

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Students ECTS in c other cou following	must complete three (3) courses (27 ECTS or 25.50 ase where students choose the course PSY 610 or urse from the department of Education) from the g:	
EDU 521	First Language Acquisition	9
EDU 522	Contemporary Approaches to Literacy Development	9
EDU 524	Text Linguistics-Multiliteracies	9
EDU 529	Monolingual, Bilingual, Multilingual Education: Attitudes, Trends and Perspectives	9
EDU 530	Theological Dimensions of Education	9
EDU 531	Religions in the Area of Globalisation	9
EDU 532	Issues of Ethics	9
EDU 533	Education for Life. Lifelong Education	9
EDU 534	Religious Education in School	9
EDU 535	Methodology of Religious Education in School	9
EDU 536	Religions and Gender	9
EDU 542	Special and Inclusive Education	9
EDU 545	Disability in School and Society	9
EDU 548	Current Trends in Inclusive Education	9
EDU 549	Disability Studies in Education	9
EDU 550	Education and Social Exclusion	9
EDU 555	Postmodern Philosophers, Alterity and Education	9
EDU 556	Advanced Seminar in the Theory and Philosophy of Education	9
EDU 560	Contemporary Principles in Early Childhood Education	9
EDU 561	The Diverse Perspectives of Play	9
EDU 562	Mathematical Thinking in the Early Years: Theoretical and Empirical Approaches	9
EDU 563	Supporting Creativity in Early Childhood Education	9
EDU 564	Ways of Studying and Observing Young Children's Development and Learning	9
EDU 565	The Semiotic Approach to Learning and Teaching Mathematics in Early Childhood	9
EDU 570	Research and Theory of Sports Pedagogy	9
EDU 571	Instructional and Curriculum Models in Physical Education	9
EDU 572	Current Issues in Sports Pedagogy	9
EDU 573	Curriculum Development in Physical Education	9
EDU 574	Analysis of Teaching in Physical Education	9
EDU 580	Theoretical Foundations of Instructional Technology: Problems and Prospects	
EDU 581	Research Methodology in Instructional Technology: Conclusions and Applications	9
EDU 582	Preparation of Research Proposals in Instructional Technology	9
EDU 598	Postcolonial Theory and the Curriculum	9

EDU 601 Philosophical Aspects of Education	9
EDU 608 Critical Discourses on Teacher Development	9
EDU 611 Curriculum Theory	9
EDU 618 Sociological Aspects of Education	9
EDU 620 Introduction to Educational Administration	9
EDU 623 Observation and Evaluation of Teachers and	
Personnel	9
EDU 631 School Effectiveness and School Improvement	9
EDU 637 The Theory and Politics of Multicultural Education	9
EDU 639 Inclusive Education: The New Face of Special Education?	9
EDU 640 Basic Principles and Processes of Curriculum	9
FDU 641 Education and Gender	9
EDU 642 Fundamentals of Measurement and Assessment	,
in Education	9
EDU 643 Application of new Technology in Curriculum Development	9
EDU 644 Development and Evaluation of Educational Texts	
and Materials	9
EDU 645 Educational Policy	9
EDU 646 Globalization, Cosmopolitanism and Education	9
EDU 647 Christian Humanocentrism and the Contemporary World	9
EDU 651 The Development of Theories in Natural Sciences: The Natural Sciences	9
EDU 652 The Process of Inquiry in Natural Sciences	9
EDU 653 Cognitive Constraints in Learning Natural Sciences: Diagnosis and Teaching Interventions	9
EDU 660 Design, Development and Evaluation of Curricula	9
EDU 662 The Role of Information of Communication Technology in Promoting Learning in Natural	
Sciences	9
EDU 664 Integrated Curricula in Natural Sciences	9
EDU 673 Mathematics Curriculum: Development and	0
EDIL 676 Contemporary Technology in Mathematics Teaching	9
EDU 677 Theories of Bepresentation and Educational Teaching	19
FDU 678 Affects and Mathematics Learning	9
FDU 680 Theories of Mathematical Understanding	9
EDU 682 Qualitative Research in Education	9
EDU 683 Educational Statistics with Statistical	
Package Applications	9
EDU 684 Ethnographic Approaches in Educational Research	9
EDU 694 Seminar in Programme Evaluation	9
PSY 610 Psychological Aspects of Education	7.5
Any other courses from the postgraduate programme of the Department of Education	

Note: Students who choose the course PSY 610 (7.5 ECTS) must complete 4 Seminars totalling 12 ECTS in order to fulfill the requisite number of credits for the degree.

#### Area Courses (36 ECTS; 4 courses x 9 ECTS)

Students must complete four courses from one of the following areas: Religious Education; Sociology of Education; Preschool Education; Theory and Philosophy of Education; Physical Education; Cultural Dimensions of Education; Educational Technology.

#### **Religious Education**

EDU 530 Theological Dimensions of Education	9
EDU 531 Religions in the Area of Globalisation	9
EDU 532 Issues of Ethics	9
EDU 533 Education for life. Lifelong Education	9
EDU 534 Religious Education in School	9
EDU 535 Methodology of Religious Education in School	9
EDU 536 Religions and Gender	9
Sociology of Education	
EDU 550 Education and Social Exclusion	9
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 618 Sociological Aspects of Education	9
EDU 641 Education and Gender	9
Preschool Education	
EDU 560 Contemporary Principles in Early Childhood Education	9
EDU 561 The Diverse Perspectives of Play	9
EDU 562 Mathematical Thinking in the Early Years: Theoretical and Empirical Approaches	9
EDU 563 Supporting Creativity in Early Childhood Education	9
EDU 564 Ways of Studying and Observing Young Children's Development and Learning	9
EDU 565 The Semiotic Approach to Learning and Teaching Mathematics in Early Childhood	9
Theory and Philosophy of Education	
EDU 555 Postmodern Philosophers, Alterity and Education	9
EDU 556 Advanced Seminar in the Theory and Philosophy of Education	9
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 601 Philosophical Aspects of Education	
EDU 611 Curriculum Theory	9
EDU 646 Globalisation, Cosmopolitanism and Education	9
Sports Pedagogy	
EDU 570 Research and Theory of Sports Pedagogy	9
EDU 571 Instructional and Curriculum Models in Physical Education	9
EDU 572 Current Issues in Sports Pedagogy	9
EDU 573 Curriculum Development in Physical Education	9

	9
EDU 623 Observation and Evaluation of Teachers and	
Personnel	9
EDU 631 School Effectiveness and School Improvement	9
Cultural Dimensions of Education	
EDU 555 Postmodern Philosophers, Alterity and Education	9
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 637 The Theory and Politics of Multicultural Education	9
EDU 641 Education and Gender	9
EDU 646 Globalisation, Cosmopolitanism and Education	9
EDU 647 Christian Humanocentrism and the Contemporary World	9
Educational Technology	
EDU 580 Theoretical Foundations of Instructional Technology. Problems and Prospects	9
EDU 581 Research Methodology in Instructional Technology: Conclusions and Applications	9
EDU 582 Preparation of Research Proposals in Instructional Technology	9
EDU 643 Application of New Technology in Curriculum Development	9
EDU 662 The Role of Information and Communication Technology in Promoting Learning in Natural Sciences	9
EDU 676 Contemporary Technology in Mathematics Teaching	9
EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS)	9
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EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS) Students must complete one of the following courses: EDU 682 Qualitative Research in Education	9
EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS) Students must complete one of the following courses: EDU 682 Qualitative Research in Education EDU 683 Educational Statistics with Statistical Package Applications	9 9 9
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EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS) Students must complete one of the following courses: EDU 682 Qualitative Research in Education EDU 683 Educational Statistics with Statistical Package Applications EDU 684 Ethnographic Approaches in Educational Research Seminars (9 ECTS: 3 seminars x 3 ECTS)	9 9 9 9
EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS) Students must complete one of the following courses: EDU 682 Qualitative Research in Education EDU 683 Educational Statistics with Statistical Package Applications EDU 684 Ethnographic Approaches in Educational Research Seminars (9 ECTS: 3 seminars x 3 ECTS) Students who choose [Option A or B] must complete three seminars offered in the selected area/areas and must secure permission from their postgraduate advisor.	9 9 9 9
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EDU 676 Contemporary Technology in Mathematics Teaching Educational Research (9 ECTS; 1 course x 9 ECTS) Students must complete one of the following courses: EDU 682 Qualitative Research in Education EDU 683 Educational Statistics with Statistical Package Applications EDU 684 Ethnographic Approaches in Educational Research Seminars (9 ECTS: 3 seminars x 3 ECTS) Students who choose [Option A or B] must complete three seminars offered in the selected area/areas and must secure permission from their postgraduate advisor. EDU 734 CE Seminar in Pedagogical Sciences I (Christian Education) EDU 734 PE Seminar in Pedagogical Sciences I (Preschool Education)	9 9 9 9 9 9 9 3 3 3
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EDU 744 SE Seminar in Pedagogical Sciences II (Sociology of Education)	3
EDU 744 PE Seminar in Pedagogical Sciences II (Preschool Education)	3
EDU 744 TP Seminar in Pedagogical Sciences II (Theory and Philosophy of Education)	3
EDU 744 SP Seminar in Pedagogical Sciences II (Sports Pedagogy)	3
EDU 744 ET Seminar in Pedagogical Sciences II (Educational Technology)	3
EDU 764 CE Seminar in Pedagogical Sciences III (Christian Education)	3
EDU 764 SE Seminar in Pedagogical Sciences III (Sociology of Education)	3
EDU 764 PE Seminar in Pedagogical Sciences III (Preschool Education)	3
EDU 764 TP Seminar in Pedagogical Sciences III (Theory and Philosophy of Education)	3
EDU 764 SP Seminar in Pedagogical Sciences III (Sports Pedagogy)	3
EDU 764 ET Seminar in Pedagogical Sciences III (Educational Technology)	3

# **Course Descriptions**

All courses are credited with 9 ECTS

#### EDU 530 Theological Dimensions of Education

The theological dimensions of education and paideia. Ontologies and education. Several theories regarding the goal, content, methodology and valuation of education.

#### EDU 531 Religions in the Era of Globalisation

Religions in the history of humankind. The ontologies of several religions. The great religions and religious phenomena today.

#### EDU 532 Issues of Ethics

Ontologies and Ethics. Ethics in modernism and postmodernism. The great issues in Ethics.

#### EDU 533 Education for Life. Lifelong Education

Education for life – a lifelong education. Several key factors in education today. Basic issues in education for life.

#### EDU 534 Religious Education in School

History, goal, content, methodology, etc., of Religious Education in school. The role of religious education in Cypriot, European and the global educational system today.

#### EDU 535 Methodology of Religious Education in School

The theological, philosophical, psychological, sociological and historical dimensions of Religious Education in school. Goals, curricula, textbooks, etc., of Religious Education in School.

#### EDU 536 Religions and Gender

The sacred and gender. Religious matriarchy. Religious patriarchy. Gender in the great global religions. The Orthodox Church and gender. Western Christianity and gender. Religious presentations of gender in a secular society.

#### **EDU 549 Disability Studies in Education**

The course presents and critically analyses important ideas in Disability Studies in Education, a field that aims to combine ideas developed in Disability Studies and Inclusive Education. Students are encouraged to discuss factors influencing the construction of the concept of disability (political, social, cultural and historical), the medical and social model of disability, the personal experience of disability and its applications in policy making, and the cultural, historical and linguistic aspects of disability rhetoric. Both classic and contemporary writings of Disability theorists are analysed and their basic ideas are discussed alongside fundamental ideas of inclusive education, such as the deconstruction of the concept of disability, the dismantling of the specialists' perceived power, the re-conceptualisation of the curriculum, the school and the educational system.

#### EDU 550 Education and Social Exclusion

Through a review of current literature, this course examines the role of the educational system in producing current forms of social exclusion. The course analyzes the structural, systemic and psychological dimensions of social exclusion and examines how schools are agents both in reproducing and overcoming social exclusion.

#### EDU 555 Postmodern Philosophers, Alterity and Education

The course offers a broad and in-depth study of the philosophical work of theorists such as Levinas, Lyotard, Kristeva, Derrida, Butler, and Spivak among others. It explores a multiplicity (ethical, linguistic, psychoanalytic, etc.) of approaches to alterity and presents the relationship of education to alterity as one of a subjectivization process, of developing a connection between the familiar and the uncanny. It also accounts for the relation of education to alterity in terms of polarizations between inwardness and outwardness as well as between reconstruction and deconstruction of meaning. By unravelling the many relations to alterity, the course broadens the various perspectives on educational topics such multiculturalism, cosmopolitanism, the construction of subjectivities and regimes of normality in educational settings, processes of racialization, constructions and transformations of gendered boundaries and desires, the teaching of textuality, the rupture of borders, post-disaster memory and writing.

#### EDU 556 Advanced Seminar in the Theory and Philosophy of Education

The seminar offers an in-depth study of either: the work of a specific philosopher or of a specific school of thought/theory; or of an exchange between philosophers with regard to a concrete debate or to a dialogue between philosophers. It encourages students to make a concomitant investigation of educational ideas, ideals, aims and practices. The main objective of the course is the careful and attentive reading of philosophical and theoretical texts and the freeing of educational thought from algorithmic receptions of discourses related to issues of ethics, historiography, textuality, epistemology and so on.

#### EDU 560 Contemporary Principles in Early Childhood Education

This course enables students to study, explore and reconceptualise the current educational, theoretical, practical and research trends in the field of early childhood education. We will analyze specific ideological principles and directions (e.g., postmodernism, feminism, deconstruction, reconceptualism, multiculturalism, ethics, etc.) to help students reconceptualise current practices and ideologies. The multiple identities of the child will be explored through diverse perspectives. The goal is to have students reconceptualise their understanding of the field through research and theory.

#### EDU 561 The Diverse Perspectives of Play

This course examines the pedagogical approach to play. Specifically, the goal of the course is to help students view play as one of the most appropriate ways to enhance overall development and learning in early childhood. This will take place by considering the historical perspectives and multiple tenets of the subject (e.g., socially, cognitively, culturally, and politically). Play will be considered as a means to unravel and develop culture and social aspects of communities in an attempt to critically view current pedagogies. Finally, the course will explore current studies and theories of the potential of play in theory, praxis and research.

#### EDU 562 Mathematical Thinking in the Early Years

Theoretical and Empirical Approaches This course examines contemporary theoretical perspectives on the development of mathematical thinking and mathematics education research trends in early childhood. Specifically, the course focuses on the following topics: the definition of mathematical thinking and its significance to young children's cognitive development; developmental progression of mathematical thinking in various concepts and processes-the learning trajectories approach; the development of problem solving strategies and intuitive rules as used by children; factors that influence the development of mathematical thinking; the role of representations and symbolism in the development of mathematical concepts and structures in young children; the impact of teaching on the development of mathematical concepts and abilities in young children; methods of exploring and assessing the development of mathematical thinking in young children; and future research directions.

#### EDU 563 Supporting Creativity in Early Childhood Education

This course examines multiple forms of creative expression and thought through a socio-cultural perspective. Various tools such as stories, picture books, comics, jokes, limericks, pictures, movies, toys, etc. are used to explore their role in developing creative and critical users and thinkers. The course looks at current research to enable students to develop methodolody based on a theoretical framework that can enhance creativity in diverse ways during early childhood.

#### EDU 564 Ways of Studying and Observing Young Children's Development and Learning

This course examines various methods and approaches for investigating, observing, documenting and assessing children's development and learning in early childhood. Specifically, the course focuses on the following issues: how children think and express their thoughts; techniques for observation of individual children or children in groups; and documentation of young children's learning. Students will first critically explore and use existing assessment tools of learning and development in early childhood, and will then develop their own methods considering the unique characteristics of young children.

#### EDU 565 The Semiotic Approach to Learning and Teaching Mathematics in Early Childhood

The course focuses on the following topics: the definition and importance of semiotic representations in learning and teaching mathematics; internal and external representations; classification of representations; discussion of various theories about mathematical representations and their development in relation to learning early mathematics; the role of multiple representations in young children's understanding of mathematical concepts and problem solving; pictorial representations in books and the development of mathematical thinking; the significance of children's and the teacher's use of gestures in learning and teaching early mathematics; and research applications and methodological approaches used in the exploration of young children's development of representations.

#### EDU 570 Research and Theory of Sports Pedagogy

This course examines research, theory, and methods of physical education. The course offers a critical approach to analyzing the existing knowledge base in sports pedagogy. It explores the historical and contemporary perspectives on the research, theory, and methods related to teacher education in physical education.

#### EDU 571 Instructional and Curriculum Models in Physical Education

Presentation and analysis of various models of physical education. Description of instructional approaches and programs that maximize children's learning and improve educational systems. Study and critical analysis of programs and models used internationally.

#### EDU 572 Current Issues in Sports Pedagogy

This course examines recent topics and trends in physical education. Specifically, it investigates the major issues surrounding physical education in schools, analyzes the major trends in physical education, discusses the provisions of reform and their repercussions in physical education, and considers ways to make teaching more effective in physical education settings.

#### EDU 573 Curriculum Development in Physical Education

The course considers the principles underlying curriculum instruction and various curriculum elements in the field of sports pedagogy. It offers analysis of the planned and sequenced learning experiences that allow students to reach significant goals. Students study the standards-based physical education curriculum and build a program based on this approach.

#### EDU 574 Analysis of Teaching in Physical Education

The course presents and analyzes systems used in evaluating student behavior, teacher behavior and student-teacher interaction. Students will examine strategies for planning and implementing effective teaching in physical education.

#### EDU 580 Theoretical Foundations of Instructional Technology: Problems and Prospects

The course examines different theories that have influenced the field of Instructional Technology over the years. It also looks at their shortcomings and potential for grounding Instructional Technology research in rich theoretical frameworks. There is particular emphasis on the various methodological approaches of investigating research questions, as they result from the application of these theoretical frameworks. More specifically, the advantages and the weaknesses of each theory are analyzed within the context of Instructional Technology research interests including: the design and development of constructivist learning environments enhanced with technology, sociotechnical factors that may inhibit the successful adoption of technology in educational settings, and the development of distributed joint cognitive systems.

#### EDU 581 Research Methodology in Instructional Technology: Conclusions and Applications

This course examines a number of qualitative and quantitative studies representative of research efforts (local and international) in Instructional Technology, and discusses the advantages, disadvantages, and usefulness of each research method-

ology. The analysis of the studies follows strict criteria related to issues of sampling, reliability, internal and external validity. The course emphasizes the need, however, for both analytic and systemic research methodologies in the field of Instructional Technology in order to examine adequately the interactions of individuals with technological tools.

#### EDU 582 Preparation of Research Proposals in Instructional Technology

The course identifies research areas and questions in the field of Instructional Technology that merit systematic examination. These include: grounding research in appropriate theoretical frameworks; literature review; design methodology; methods of data analysis; interpretation of results, conclusions, and their educational and theoretical importance and application.

#### EDU 684 Ethnographic Approaches in Educational Research

This course is an introduction to ethnographic research in education. The course looks at various issues including the origin of ethnographic research, the history and theoretical underpinnings of ethnographic research in education, the main similarities and differences between ethnographic research and other types of educational research studies, research questions addressed by ethnographic studies, the design and conducting of ethnographic research, ethics and morality in conducting ethnographic research, collection and management of ethnographic data (interviews, observations, documentary and archival research, film and video in ethnographic research), the role of the researcher-ethnographer, different approaches in analyzing ethnographic data, and writing and evaluating ethnographic research studies in education.

# **Contact Details**

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# PhD IN PEDAGOGICAL SCIENCES

# Structure of the PhD Programme

Successful completion of 258 ECTS is required. This includes the following courses:

5 Courses x 9 ECTS	
3 Compulsory Courses	
1 Elective Course	
1 Research Course	45
Comprehensive Examination	
(examination in 5 courses)	33
Research Stage (4 courses x 30 ECTS)	120
Dissertation I	30
Dissertation II	3
Total ECTS	258

All work beginning with Dissertation III and following receives no (0) ECTS credit.

# Aim of the Programme

This Postgraduate Programme offers education specialists and professionals involved in education the opportunity to undertake specialized studies in the pedagogical sciences. Those who successfully complete the programme to earn a doctoral degree can pursue an academic career.

# Requirements for Admission to the Ph.D. Programme

Applicants must hold a master degree in a similar/ same area as the PhD programme; a master degree in Science Education is also acceptable. Successful applicants must subsequently receive the approval of their postgraduate advisor to be admitted to the specific programme selected.

# Structure of the Ph.D. Programme

	ECTS
Christian Education	
Compulsory Courses (27 ECTS; 3 courses x 9 ECTS)	
EDU 530 Religious Aspects in Education	9
EDU 534 Religious Education in School	9
EDU 535 Methodology of Religious Education in School	9

#### Elective Courses (9 ECTS; 1 course x 9ECTS)

(Choose one course from the following)	
EDU 531 Religions in the Era of Globalisation	9
EDU 532 Issues of Ethics	9
EDU 533 Education for Life; Lifelong Education	9
EDU 536 Religions and Gender	9
EDU 647 Christian Humanocentrism and the Contemporary	
World	9
EDU 689C Independent Study	9
Sociology of Education	

#### Compulsory Courses (27 ECTS; 3 courses x 9 ECTS)

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#### Elective Courses (9 ECTS; 1 course x 9 ECTS)

(Choose one course from the following)

EDU 529 Monolingual, Bilingual, Multilingual Education:	
Attitudes, Trends and Perspectives	9
EDU 542 Special and Inclusive Education	9
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 599 Gender Theories and the Politics of the Curriculum	9
EDU 607 The social discourse on curriculum development	9
EDU 609 Curriculum in a multicultural society	9

#### **Preschool Education**

Compulsory Courses (27 ECTS; 3 courses x 9 ECTS )	
(Choose three courses from the following)	
EDU 560 Contemporary Principles in Early Childhood Education	9
EDU 561 The Diverse Perspective of Play	9
EDU 562 Mathematical Thinking in the Early Years: Theoretical and Empirical Approaches	9
EDU 563 Supporting Creativity in Early Childhood Education	9
EDU 564 Ways of Studying and Observing Young Children's Development and Learning	9
EDU 565 The Semiotic Approach to Learning and Teaching Mathematics in Early Childhood	9
Elective Courses (9 ECTS; 1 course x 9 ECTS)	
(Choose one course from the following)	
EDU 529 Monolingual, Bilingual, Multilingual Education: Attitudes, Trends and Perspectives	9
EDU 548 Current Trends in Inclusive Education	9
EDU 550 Education and Social Exclusion	9

EDU 566 Social Dimensions of the Child's Development (humor, play, social agency, communities of practice, Barbie-TV) 9

EDU 567	' Critical Reconceptualisations in the Field of Early	
	Childhood Education (types of research, children	
	as researchers-project approach, power and ethics,	
	quality, action research, teacher identities)	9

#### EDU 689P Independent Study

#### Theory and Philosophy of Education

#### Compulsory Courses (27 ECTS; 3 courses x 9ECTS)

EDU 555 Postmodern Philosophers, Alterity and Education	9
EDU 556 Advanced Seminar in the Theory and Philosophy of Education	9
EDU 601 Philosophical Aspects of Education	

#### Elective Courses (9 ECTS; 1 course x 9 ECTS)

(Choose one course from the following)	
EDU 598 Postcolonial Theory and the Curriculum	9
EDU 611 Curriculum Theory	9
EDU 618 Sociological Aspects of Education	9
EDU 637 The Theory and Politics of Multicultural Education	9
EDU 641 Education and Gender	9
EDU 646 Globalisation, Cosmopolitanism and Education	9
EDU 689P Independent Study	9

#### **Sports Pedagogy**

#### Compulsory Courses (27 ECTS; 3 courses x 9 ECTS)

(Choose three courses from the following)	
EDU 570 Research and Theory of Sports Pedagogy	9
EDU 571 Instructional and Curriculum Models in Physical Education	9
EDU 572 Current Issues in Sports Pedagogy	9
EDU 573 Curriculum Development in Physical Education	9
EDU 574 Analysis of Teaching in Physical Education	9
Elective Courses (9 ECTS; 1 course x 9 ECTS)	
(Choose one course from the following)	
EDU 623 Observation and Evaluation of Teaching and Personnel	9
EDU 631 School Effectiveness and School Improvement	9
FDU 642 Fundamentals of Measurements and Assessment	

# in Education

#### **Educational Technology**

#### Compulsory Courses (27 ECTS; 3 courses x 9 ECTS)

- EDU 580 Theoretical Foundations of Instructional Technology: Problems and Prospects
- EDU 581 Research Methodology in Instructional Technology: Conclusions and Applications
- EDU 582 Preparation of Research Proposals in Instructional Technology

Elective Courses (9 ECTS; 1 course x 9 ECTS)	
(Choose one course from the following)	
EDU 524 Text Linguistics-Multiliteracies	9
EDU 601 Philosophical Aspects of Education	
EDU 625 Applications of New Technology in Educational Administration	9
EDU 643 Application of New Technology in Curriculum Development	9
EDU 662 The Role of Information and Communication Technology in Promoting Learning in Natural Sciences	9
EDU 676 Contemporary Technology in Mathematics Teaching	9
EDU 689T Independent Study	9
Educational Research (9 ECTS; 1 course x 9 ECTS)	
(Choose one course from the following)	
EDU 682 Qualitative Research in Education	9

EDU 682 Qualitative Research in Education	9
EDU 683 Educational Statistics with Statistical Package Applications	9
EDU 684 Ethnographic Approaches in Educational Research	9
EDU 751 Design and Research Proposals	9
EDU 752 Models of Teaching and Didactic Recontextualization of the Content of Natural Sciences	on

# **Course Descriptions**

All courses are credited with 9 ECTS.

#### EDU 530 Theological Dimensions of Education

The theological dimensions of education and pedagogy. Ontologies and education. Several theories on the goal, content, methodology and valuation of education.

#### EDU 531 Religions in the Era of Globalisation

Religions in the history of humankind. The ontologies of several religions. The great religions and religious phenomena today.

#### EDU 532 Issues of Ethics

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Ontologies and Ethics. Ethics in modernism amd postmodernism. The great issues of Ethics.

#### EDU 533 Education for Life; Lifelong Education

Education for life as lifelong education. Important factors in education today. Basic issues in education for life.

#### EDU 534 Religious Education in School

History, goal, content, methodology, etc., of Religious Education in school. The role of Religious Education in Cypriot, European and global educational systems today.

#### EDU 535 Methodology of Religious Education in School

The theological, philosophical, psychological, sociological and historical dimensions of Religious Education in school. Goals, curricula, textbooks, etc., for Religious Education in School.

#### **EDU 536 Religions and Gender**

The sacred in relation to gender. Religious matriarchy. Religious patriarchy. The role of gender in the great religions of the world. The Orthodox Church and gender. Western Christianity and gender. Religious presentations of gender in a secular society.

#### **EDU 550 Education and Social Exclusion**

Through a review of current literature, this course examines the role of the education system in producing current forms of social exclusion. The course analyzes the structural, systemic and psychological dimensions of social exclusion and examines how schools are agents both in reproducing and overcoming social exclusion.

#### EDU 555 Postmodern Philosophers, Alterity and Education

The course offers a broad and in-depth study of the philosophical work of theorists such as Levinas, Lyotard, Kristeva, Derrida, Butler, Spivak, and others. It explores a multiplicity (ethical, linguistic, psychoanalytic, etc.) of approaches to alterity and presents the relation of education to alterity as one of a subjectivization process, of developing the connection between the familiar and the uncanny. It also accounts for the relation of education to alterity in terms of polarizations between inwardness and outwardness as well as between reconstruction and deconstruction of meaning. By unravelling the numerous relations to alterity, the course broadens the various perspectives on educational topics such as multiculturalism, cosmopolitanism, the construction of subjectivities and regimes of normality in educational settings, processes of racialization, constructions and transformations of gendered boundaries and desires, the teaching of textuality, the rupture of borders, and post-disaster memory and writing.

#### EDU 556 Advanced Seminar in the Theory and Philosophy of Education

The seminar offers an in-depth study of either: the work of a specific philosopher or a specific school of thought/theory; or of an exchange between philosophers with regard to a concrete debate or to a dialogue between philosophers. It also promotes the study of a concomitant investigation of educational ideas, ideals, aims and practices. The main objectives of the course are the careful and attentive reading of philosophical and theoretical texts, and the consideration of educational thought free from [algorithmic receptions of discourses] related to issues of ethics, historiography, textuality, epistemology and so on.

#### EDU 560 Contemporary Principles in Early Childhood Education

This course offers students an opportunity to study, explore and reconceptualise the current educational, theoretical, practical and research trends in the field of early childhood education. Specific ideological principles and directions will be further analyzed (e.g., postmodernism, feminism, deconstruction, reconceptualism, multiculturalism, ethics, etc.) in order to allow for reconceptualisation of current practices and ideologies. The multiple identities of the child will be explored through diverse perspectives. The goal is to have students reconceptualise their understanding of the field through research and theory.

#### EDU 561 The Diverse Perspectives of Play

This course examines the pedagogical approach to play. Specifically, the goal of the course is to enable students to look at play as one of the most appropriate ways to enhance overall development and learning in early childhood. To this end, the course will consider the historical perspectives and multiple tenets of the subject (e.g., socially, cognitively, culturally, and politically). Play will be considered as a means to unravel and develop cultural and social aspects of communities in an attempt to critically view current pedagogies. Finally, students will explore current studies and theories of the potential of play in theory, praxis and research.

#### EDU 562 Mathematical Thinking in the Early Years

Theoretical and Empirical Approaches This course examines contemporary theoretical perspectives of the development of mathematical thinking and mathematics education research trends in early childhood. Specifically, the course focuses on the following topics: the definition of mathematical thinking and its significance in young children's cognitive development; developmental progression of mathematical thinking in various concepts and processes--the learning trajectories approach; the development of problem solving strategies and intuitive rules as used by children; factors that influence the development of mathematical thinking; the role of representations and symbolism in the development of mathematical concepts and structures in young children; the impact of teaching on the development of mathematical concepts and abilities in young children; methods of exploring and assessing the development of mathematical thinking in young children; and future research directions.

#### EDU 563 Supporeativity in Early Childhood Education

In this course multiple forms of creative expression and thought are examined through a socio-cultural perspective. A variety of tools such as stories, picture books, comics, jokes, limericks, pictures, movies, toys, etc., will be used to explore how they help in developing creative and critical users and thinkers. The course will cover current research, which will give students the theoretical framework upon which to build a programme that will enhance creativity of children during early childhood education.

#### EDU 564 Ways of Studying and Observing Young Children's Development and Learning

This course examines various methods of and approaches to investigating, observing, documenting and assessing children's development and learning in early childhood. Specifically, the course focuses on the following issues: how children think and express their thoughts; techniques for observation of both individual children and children in groups; and documentation of young children's learning. Students will first critically explore and use existing assessment tools of learning and development in early childhood; then they will develop their own methods and tools based on their knowledge of the unique characteristics of the early childhood age.

#### EDU 565 The Semiotic Approach to Learning and Teaching Mathematics in Early Childhood

The course focuses on the following topics: the definition and importance of semiotic representations in learning and teaching mathematics; internal and external representations; classification of representations; examination of various theories about mathematical representations and their development in relation to learning early mathematics; the role of multiple representations in young children's understanding of mathematical concepts and their problem solving; pictorial representations in books and the development of mathematical thinking; the significance of children's and the teacher's use of gestures in learning and teaching early mathematics; and research applications and methodological approaches used in the exploration of young children's development of representations.

#### EDU 566 Social Dimensions of the Child's Development (humor, play, social agency, communities of practice, Barbie-TV)

This course looks at development issues through the prism of socio-cultural contexts that encompass the child's life (e.g., family, child care, school, friends, playground). Using socio-epistemological principles in the field of education and psychology of learning (Vygotsky, Rogoff, etc.) as well as reconceptualising such theories, the basic elements that affect children's social identities will be extracted and their impact on development will be examined. The study of current research in the field of early childhood will allow students to critically analyze the variables which affect the provision of appropriate experiences and opportunities for the child in today's differentiated society.

#### EDU 567 Critical Reconceptualisations in the Field of Early Childhood Education (types of research, children as researchers- project approach, power and ethics, quality, action research, teacher identities)

During this course there will be a discussion of the ideological influences and the scientifically based actions in the field of early childhood education. The different epistemological principles and approaches will be explored, highlighting the multiple theoretical approaches in the field (e.g., modernism, postmodernism, feminism, deconstruction, reconceptualisation, multiculturalism, ethics). The goal is to critically reconstruct current ideas, theories and practices in the field.

#### EDU 570 Research and Theory of Sports Pedagogy

This course examines research, theory, and methods of physical education. The course offers a critical approach to the analysis of current thought regarding sports pedagogy. It explores histori-

cal and contemporary perspectives on the research, theory, and method of teacher education in physical education.

#### EDU 571 Instructional and Curriculum Models in Physical Education

The course presents and analyses various models of physical education. It examines instructional approaches and programs that maximize learning and improve educational systems. It studies and critically analyses programs and models that are applied in international contexts.

#### EDU 572 Current Issues in Sports Pedagogy

This course is focused on recent topics and trends in physical education. Specifically, the course discusses the major issues surrounding physical education in schools, analyzes the major trends in physical education, discusses the running provisions of reform and their repercussions in physical education, and discusses quality and effective teaching in physical education settings.

#### EDU 573 Curriculum Development in Physical Education

The course examiness the principles underlying curriculum instruction and various curriculum elements in the field of sports pedagogy. Students will analyze the planned and sequenced learning experiences that lead to significant goals. They will also study the standards-based physical education curriculum and build a program based on this approach.

#### EDU 574 Analysis of Teaching in Physical Education

The course presents and analyzes systems used in evaluating student behavior, teacher behavior and student-teacher interaction. It also looks at strategies for planning and implementing effective teaching in physical education.

#### EDU 580 Theoretical Foundations of Instructional Technology: Problems and Prospects

The course examines different theories that have influenced the field of Instructional Technology over the years, and their shortcomings and potential for grounding Instructional Technology research in rich theoretical frameworks. There is particular emphasis on the methodological approaches of investigating research questions as they result from the application of these theoretical frameworks. More specifically, the advantages and the weaknesses of each theory are analyzed within the context of Instructional Technology research interests such as: the design and development of constructivist learning environments enhanced with technology; sociotechnical factors that may inhibit the successful adoption of technology in educational settings; and the development of distributed joint cognitive systems.

#### EDU 581 Research Methodology in Instructional Technology: Conclusions and Applications

This course, examines a number of qualitative and quantitative studies representative of research efforts (local and international) in Instructional Technology, and considers the advantages, disadvantages, and usefulness of each research methodology. Analysis follows strict criteria related to issues of sampling, reliability, internal and external validity, but the course also discusses the need for both analytic and systemic research methodologies in the field of Instructional Technology, as these are required to examine adequately the interactions of individuals with technological tools.

#### EDU 582 Preparation of Research Proposals in Instructional Technology

The course identifies research areas and questions in the field of Instructional Technology that require systematic examination. It focuses on the importance of grounding research in appropriate theoretical frameworks, literature review, and design methodology. Also covered are data analysis methods, interpretation of results, conclusions, and their educational and theoretical importance and application.

#### EDU 684 Ethnographic Approaches in Educational Research

This course is an introduction to ethnographic research in education. The course examines issues such as the origin of ethnographic research, the history and theoretical underpinnings of ethnographic research in education, main similarities and differences between ethnographic research and other types of educational research studies, research questions addressed by ethnographic studies, design and conduct of ethnographic research, ethics and morality in conducting ethnographic research, collection and management of ethnographic data (interviews, observations, documentary and archival research, film and video in ethnographic research), the role of the researcher-ethnographer, different approaches in analyzing ethnographic data, and writing and evaluating ethnographic research studies in education.

More course descriptions are offered by other postgraduate programmes of the Department.

# Contact Details Programme Coordinators

#### **Christian Education**

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#### **Sociology of Education**

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#### MATHEMATICS EDUCATION

## Aim of the Programme

Technological development coupled with the increased demands associated with the social sciences make Mathematics a necessary tool for all subject areas. Moreover, growing awareness of mathematics' importance in the development of our "higher mental functions" and the constantly expanding concept of mathematics literacy call for greater emphasis on mathematics education. Advanced studies in mathematics will enable graduates to approach the relevant topics through research and critical analysis.

The aim of the programme is to educate individuals to analyze and interpret the aims and objectives of mathematics education, follow the recent developments in their subject and take up specific research efforts in the areas of mathematics teaching and learning.

The programme leads to the acquisition of Master and Doctoral Degrees.

# **Structure of the Master Programme**

Students must complete courses totalling 90 ECTS as shown in options A and B. The courses of the programme are divided in three categories: a) Specialization Courses, b) Educational Research Courses and c) Seminars. Students may complete one of the following options:

#### Option A (completion of 9 courses and 3 seminars)

The student selects eight courses from the Specialization Courses (72 ECTS), one course from the Educational Research Courses (9 ECTS) and 3 seminars (9 ECTS).

# Option B (completion of 7 courses, 3 seminars and dissertation)

The student selects six courses from the Specialization Courses (54 ECTS), one course from the Educational Research Courses (9 ECTS), three seminars (9 ECTS) and completes a dissertation (18 ECTS).

#### **OPTION A**

9 Specialization Courses (8 X 9) + Educational Research (1 X 9) + 3 Seminars (3 X 3 ECTS) = TOTAL 90 ECTS

Specialisation Courses	72
Compulsory Courses	36
EDU 673 Mathematics Curriculum: Development and Evaluation (C,I)	9
EDU 677 Theories of Representation and Educational Teaching (C,I)	9
EDU 678 Affect and Mathematics Learning (C,I)	9
EDU 680 Theories of Mathematical Understanding (C,B)	9
Elective Courses (4 courses)	36
EDU 671 Cognitive Analysis of Mathematics Learning (S,B)	9
EDU 672 Topics in the Philosophy and History of Mathematics (S,B)	9
EDU 674 Mathematical Problem Solving (S,I)	9
EDU 675 Recent Trends in Mathematics Education (S,B)	9
EDU 676 Contemporary Technology in Mathematics Teaching (C,B)	9
EDU 679 Space, Visualization and Reasoning Methods (C,I)	9

Educational Research Courses (1 course)	9
EDU 681 Advanced Educational Research Methods (S,A)	9
EDU 682 Qualitative Research in Education (S,A)	9
EDU 683 Educational Statistics with Statistical Packages Applications (S,A)	9
PSY 788 Advanced Research Methods (M,S)	9
Seminars	~
Seminars	9
EDU 732 Seminar in Mathematics Education I	<b>9</b> 3
EDU 732 Seminar in Mathematics Education I EDU 742 Seminar in Mathematics Education II	9 3 3
EDU 732 Seminar in Mathematics Education I EDU 742 Seminar in Mathematics Education II EDU 762 Seminar in Mathematics Education III	3 3 3
EDU 732 Seminar in Mathematics Education I EDU 742 Seminar in Mathematics Education II EDU 762 Seminar in Mathematics Education III <b>TOTAL ECTS</b>	9 3 3 3 90

# **OPTION B**

FCTS

7 Specialization Courses (6 X 9) + Educational Research (1 X 9) + Dissertation (18 ECTS) + 3 Seminars (9 ECTS) = TOTAL 90 ECTS

ECTS

Specialisation Courses	54
Compulsory Courses	36
EDU 673 Mathematics Curriculum: Development and Evaluation (C,I)	9
EDU 677 Theories of Representation and Educational Teaching (C,I)	9
EDU 678 Affect and Mathematics Learning (C,I)	9
EDU 680 Theories of Mathematical Understanding (C,I)	9
<b>Elective Courses (2 courses)</b> EDU 671 Cognitive Analysis of Mathematics Learning (S,B) EDU 672 Topics in the Philosophy and History	<b>18</b> 9
of Mathematics (S,B)	9
EDU 674 Mathematical Problem Solving (S,I)	9
EDU 675 Recent Trends in Mathematics Education (S,B)	9
EDU 676 Contemporary Technology in Mathematics Teaching (C,B)	9
EDU 679 Space, Visualization and Reasoning Methods (C,I)	9
Educational Research Courses (1 course)	9
EDU 681 Advanced Educational Research Methods (S,A)	9
EDU 682 Qualitative Research in Education (S,A)	9
EDU 683 Educational Statistics with Statistical Packages (S,A	) 9
PSY 788 Advanced Research Methods (M,S)	9
Dissertation	18
EDU 798M Dissertation I (S,Sp)	9
EDU 799M Dissertation II (S,Sp)	9

Seminars	9
EDU 732 Seminar in Mathematics Education I	3
EDU 742 Seminar in Mathematics Education II	3
EDU 762 Seminar in Mathematics Education III	3
TOTAL ECTS	90

#### Structure of the Ph.D. Programme

For information on the structure of the Ph.D. Programme, see relevant paragraph above.

The courses of the programme must be approved by the student's postgraduate advisor.

#### **Course Descriptions**

All courses are credited with 9 ECTS.

#### EDU 672 Topics in the Philosophy and History of Mathematics

This course investigates the fundamental problems of the epistemology of mathematics such as what is mathematics and how is it created, what does it mean for a person to learn, how does learning take place, etc. The three main positions on the foundations of mathematics are discussed: Logicism, Formalism, and Intuitionism, as well as some recent views on quasi-empiricism (Lakatos, Putnam). Specifically, topics such as the concept of mathematical truth, the concept of proof are discussed. Philosophical topics are presented in the context of their historical development and emphasis is placed on methods and approaches that make use of history in the teaching of mathematics.

#### EDU 673 Curriculum Development for Mathematics and Educational Evaluation

This course is divided into two parts. The first part analyses fundamental aspects of curricula with emphasis on the organisation and structure of mathematics curricula. A philosophical analysis of programmes developed in the last few years both in Greece and internationally is provided. The parameters influencing the development of curricula are investigated. Special emphasis is given to the content and the pedagogical aspect of mathematics curricula and several models of developing curricula are examined. Specifically, the curricula used in the United States, United Kingdom, and Greece are examined and compared to those used in Cyprus. In the second part of the course, emphasis is placed on the importance of assessment in the effort to modernize the curriculum. In particular, methods of curricular assessment in mathematics are presented and contemporary student evaluation procedures are examined. Finally, the international literature is examined for methods of specifying standards and the basic approaches to their assessment.

#### EDU 674 Mathematical Problem Solving

The course examines concepts and strategies related to mathematical problem solving, problem posing and assessment. We discuss the classical heuristics strategies proposed by Polya and more contemporary interpretations and their applications to the process of problem posing, the teaching process and assessment of problem-solving capability. Introducing open problem activities in instruction is an integral part of the course. The course also attempts to offer a comprehensive assessment of the recent findings of the extensive research activity on the subject.

#### EDU 675 Contemporary Research in Mathematics Education

The aim of the course is to introduce the student to the main concepts and methods used in contemporary research on Mathematics Education. The course has three main dimensions:

- First Dimension: Concepts and Methods in Mathematics Teaching. Several concepts and methods associated with Mathematics Teaching are presented, such as the Didactic Contract, Didactic Transformation, the Concept of the Obstacle, Didactic Situations, and Framework Games. These concepts and methods are applied to mathematical concepts of primary and secondary education.
- Second Dimension: Language and Learning in Mathematics. This involves the reading of mathematical texts; characteristics of mathematical texts; comprehension tests; types of legibility; completion tests.
- Third Dimension: Representation Problems in the Teaching and Learning of Mathematics. This dimension presents evidence on the role of representations and translations in the learning of mathematics and the solution of problems. It examines applications associated with mathematical concepts used in primary and secondary education.

#### EDU 676 Contemporary Technology in Mathematics Teaching

The course examines current findings in relation to the incorporation of technology with the subject of mathematics. Special emphasis is given to contemporary theories of psychology, which constitute the basis for the introduction of new learning processes. The course discusses ways of incorporating computers and software packages (Logo, Mathematica, Cabri, Spreadsheets, Sketchpad, etc.) in the teaching of mathematical concepts, with emphasis on use of the Internet. It analyses methods of introducing and using computer graphics in the teaching of algebra and calculus. Finally, it presents projects developed abroad concerning the introduction of technology in the teaching of mathematics.

#### EDU 677 Theories of Representation and Educational Applications

A central goal of the course is the presentation of Representation Theories, which indicate the power of internal representations of the subjects in learning mathematics. For this reason several studies on the role of representations are critically examined. These studies are categorized in four domains according to their content:

- Studies which suggest a representation theory
- Studies which examine the relation between representations and problem solving
- Studies which examine the change in the field of representations
- Studies which examine the relation between representations and specific mathematical concepts (functions, fractions, proportions, area, etc)

#### EDU 678 Affect and Mathematics Learning

The aim of this course is the study of the connections between the affective domain and the teaching and learning of mathematics. Specifically, the meaning and the role of the concepts "attitudes towards mathematics," "beliefs" and "conceptions," "motivation" and "metacognition," "self-esteem" and "self-concept," "self-efficacy" and "self-regulation" with respect to teaching and learning mathematics and in particular with respect to problem solving, are discussed and analysed.

#### EDU 679 Space, Visualization and Reasoning in Geometry

The course is focused on three dimensions related to the study of Geometry.

The first dimension concerns children's perception of space and the variety of perceptual, cognitive and epistemological obstacles related to space perception.

The second dimension deals with the representations related to the perception of space.

The third dimension concentrates on students' reasoning in Geometry.

#### EDU 680 Theories of Mathematical Understanding

The aim of the course is to draw together contemporary views on the growth of mathematical knowledge and relate these to theories developed within Mathematics Education Research.

The main themes of the course are:

- Different forms of mathematical understanding
- Cognitive growth in mathematics
- Notions of abstraction and their influence on the development of mathematical concepts
- Intuitive rules and mathematical understanding

#### EDU 681 Advanced Educational Research Methods

This course pertains to other graduate programmes and is described above.

#### EDU 683 Educational Statistics with Statistical Package Applications

This course pertains to other graduate programmes and is described above.

# **Contact Details**

#### **Programme Coordinators**

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Demetra Pitta-Pantazi Associate Professor Tel.: 22892946 e-mail: dpitta@ucy.ac.cy

# LEARNING IN NATURAL SCIENCES

#### **Justification of the Programme**

Learning depends on the activation of multiple cognitive processes. Recent developments in cognitive science provide the basis for a systematic approach to understanding, investigating and modelling science learning processes.

Natural sciences constitute an advanced and complex sphere of knowledge with widely accepted capabilities of prediction and interpretation. Consequently, learning in natural sciences poses special challenges both for learners and for the educational system that supports them.

Many educational systems consider as basic priorities an adequate understanding of nature and the acquisition of skills for scientific analysis and systematic reasoning.

There is a need for teachers in primary and secondary education to acquire research skills. The programme aspires to foster the development of researchers specialized in science learning who will be well equipped in terms of knowledge from natural sciences, cognitive psychology, and research methodology and thus be in a position to provide the evidence that will support a continuous qualitative upgrading of educational policy in science.

# Aims and Objectives of the Programme

The general aim of the programme is to offer comprehensive education for researchers in science education. Programme participants will acquire skills in basic and applied research; they will develop strategies for evaluating and reforming educational policy; and they will acquire skills for critically analysing recent trends and findings related to science education.

After successful completion of the programme, it is expected that students:

 Will be acquainted with the basic literature on science learning, the current theories of cognitive development, and approaches to the design, development, and implementation of educational programmes in natural sciences

- Will develop skills for reviewing and critically analysing the literature related to specific research questions
- Will be acquainted with a range of qualitative and quantitative research methods, and will acquire experience in applying these methods to the collection and analysis of data and in promoting the study of basic and applied questions in science learning
- Will be able to formulate questions that could be investigated, specify the degree of constraint of these questions, and select an appropriate methodology for providing answers
- Will be able to utilise available research evidence and develop detailed suggestions for educational policy changes taking into consideration existing needs and constraints of the educational system in an attempt to continuously optimise the effectiveness of the teachinglearning process in the natural sciences

# **Structure of the Master Programme**

For the Master Programme, candidates for admission must have a first degree from a Department of Education, Engineering, Physics, Chemistry, Biology or Natural Sciences of an accredited University.

For the completion of the programme, each graduate student must successfully complete courses corresponding to 90 ECTS which are distributed as follows:

FCTS

- 15 or 16.5 ECTS in Core Courses
- 45 ECTS in Specialization Courses
- 21 ECTS in Dissertation
- 9 ECTS in Seminars

Core Courses	15 or 16.5
Cognitive Psychology	7.5
One of the following courses:	
PSY 605 Psychometrics	7.5
PSY 606 Cognitive Development	7.5
PSY 610 Psychology of Education	7.5
PSY 616 Mental Representation	7.5
PSY 620 Learning and Cognitive	7.5
PSY 668 Cognitive and Teaching Approaches (Theories of Knowledge acquisition and the process of learning)	7.5
<b>Methodology of Educational Research</b> One of the following courses: EDU 681 Advanced Research Methods	<b>9 or 7.5</b> 9

EDU 682 Qualitative Research in Education	9
EDU 683 Educational Statistics with Statistical Packages Application	9
EDU 780 Using Basic and Advanced Multilevel Modelign in Educational Research	9
PSY 788 Advanced Research Methods	7.5
Specialisation Courses	45
Learning in Natural Sciences	18
EDU 652 The Process of Inquiry in Natural Sciences	9
EDU 653 Cognitive Constraints in Learning Natural Science Diagnosis and Teaching Interventions	s: 9
Epistimology	9
One of the following courses:	
EDU 651 The Development of Theories in Natural Sciences: The Natural Sciences	9
PSY 651 The Development of Scientific Theories	9
PSY 661 The Nature of Sciences and Cognitive Change	9
Elective Courses	18
EDU 602 Theory of Knowledge	9
EDU 660 Design, Development and Evaluation of Curricula	9
EDU 662 The Role of Information and Communication Technology in Promoting Learning in Natural Sciences	9
EDU 663 Modern Trends in Teaching Natural Sciences	9
EDU 664 Integrated Curricula in Natural Sciences (compulsory for graduates of the Education	0
Department)	9
EDU 665 Environmental Education	9
Sciences	9
EDU 667 Development of Scientific Reasoning: Cognitive and Teaching Approaches	9
EDU 669 Design and Analysis of Educational Software Related to the Natural Sciences	9
EDU 689C Independent Study	9
EDU 800 Master Thesis I*	10
EDU 801 Master Thesis II*	11
Total	21
* Compulsory for the graduate students of the Department of Educat	ion
Seminars	9

Seminars	3
EDU 733 Learning in Natural Sciences Seminar I	3
EDU 743 Learning in Natural Sciences Seminar II	3
EDU 763 Learning in Natural Sciences Seminar III	3
TOTAL	90 or 91.5

# Structure of the Ph.D. Programme

For admission to the Ph.D. Programme, a Master degree in the general area of Science Education is required.

	ECTS
Compulsory Courses	45
EDU 751 Design of Research Proposals	9
EDU 752 Analysis and Implementation of Research Ev	idence 9
EDU 753 Models of Teaching and Didactical Recontextua of the Content of Natural Sciences	alization 9
Any two courses from the list of elective courses of the Master programme	18

# **Completion of the Programme**

For the completion of the programme, students are required to:

- Successfully complete a comprehensive examination
- Complete a Ph.D. dissertation, present its results in an open seminar and defend it successfully before a fivemember examination committee

# **Course Descriptions**

All courses are credited with 9 ECTS.

#### EDU 602 Theory of Knowledge

Issues pertaining to the nature of knowledge, the way knowledge is acquired, which mechanisms facilitate its acquisition, the degree of its validity and other related problems have occupied human thought for centuries. The issue of the nature of knowledge is of special importance to education, insofar as its main aim relates to the construction and dissemination of knowledge. The course examines all the related issues from a systematic rather than from a historic perspective and focuses on the various attempts to resolve different epistemological problems. The course emphasizes the relation between theory and experimentation as a factor contributing to the development of scientific theories and the effective teaching and understanding of their conceptualizations. The approach is not just philosophical but also relies on research in other disciplines, such as psychology and cognitive science, to the extent that the study of some philosophical issues can be approached and advanced based on the findings of these disciplines.

#### EDU 651 The Development of Theories in Natural Sciences: The Nature of Natural Sciences I

The main topic of this course relates to the nature of scientific theories and deals with issues such as the process of discovery and the verisimilitude of scientific theories, the role of experimentation, the sociology of scientific research, and the main attributes differentiating a scientific theory from other thought processes. Epistemological issues related to scientific theories,

such as their truth and their correspondence with reality, as well as realism in science will also be discussed. Different scientific approaches, as they are revealed through the history of the natural sciences, will be examined.

#### EDU 652 The Process of Inquiry in Natural Sciences

The course explores the process of inquiry as it relates to scientific conceptualizations and consequent explanation of natural phenomena. Within this framework, the logical relationship between the scientific concepts embedded in a hypothesis and the design of a valid experiment are exemplified. We place emphasis on the formulation of appropriate questions and the design and implementation of investigations. We recognize the role of empirical data and the importance of critical evaluation of the data sources, the data collection process as well as the validity of data processing and analysis. Issues related to scientific reasoning and argumentation, the integration of procedural and conceptual knowledge, and the contribution of mathematics and technology in promoting the process of inquiry are also examined.

#### EDU 653 Cognitive Constraints in Learning Natural Sciences: Diagnosis and Teaching Interventions

Student responses to questions relating to issues of natural sciences reveal problems in their understanding, for example, preconceptions, naive conceptions, alternative frameworks, inert knowledge, context-dependent knowledge, contradictions. The course exemplifies ways of identifying these problems and examines theoretical propositions regarding their interpretation. Within these theoretical orientations, the course examines the role of different factors such as pre-existing knowledge, conceptual reasoning or epistemological difficulties, and instructional approaches in an attempt to address the issues pertaining to the design of more effective teaching interventions.

#### EDU 660 Design, Development and Evaluation of Curricula

Curricula play an important role in the educational process. The course examines issues related to science curricula. We explore systematic approaches to the design of curricula emphasizing principles such as conceptual hierarchies and epistemological analysis in determining activity sequences and cross-connections. We discuss ways of promoting the effectiveness of curricula in guiding students to overcome specific conceptual, reasoning, and epistemological difficulties. We examine issues related to the implementation of curricula, in particular, the role of facilitator questions in open and guided inquiry, the practical aspects of systematic development of a coherent conceptual framework and the integrated development of conceptual understanding and reasoning skills. Finally, we explore different methods for validating curriculum materials in relation to the intended objectives of conceptual understanding and the development of reasoning and investigative skills.

#### EDU 661 The Development of Theories in Natural Sciences: The Nature of Natural Sciences II

This course builds on EDU 651 and emphasizes the issues related to specific historical advancements in natural sciences, as they

are depicted in authentic sources describing the scientific activities of prominent scientists (Newton, Faraday, Lavoisier, Darwin, etc.). Through an in-depth analysis of these historical sources, the development of scientific ideas and methods of investigation will be revealed. The main objective is to focus on the ways scientists understand and face the different methodological and philosophical problems that are interrelated with the ongoing scientific enterprise.

#### EDU 662 The Role of Information and Communication Technology in Promoting Learning in Natural Sciences

Cognitive tools for teaching and learning. Mechanisms for integrating and applying information and communication tools in the development of curriculum materials in the natural sciences. Information and communication tools for modelling, simulating, communicating, organizing and processing information, controlling mechanisms and sensors. Modelling as a process of teaching and learning.

#### EDU 663 Modern Trends in Teaching Natural Sciences

Intended learning outcomes (dissemination of information, cognitive and procedural skills, construction of concepts) and teaching approaches. Teaching methods and teaching interventions. Cooperative learning in natural sciences. Problem solving approaches. Teaching as a process of scientific investigation and as a process of promoting conceptual development. Development of attitudes and skills. The contribution of natural sciences in promoting social and cultural change.

#### EDU 664 Integrated Curricula in Natural Sciences

Physical and chemical systems and mechanisms. Modelling of phenomena and other approaches of integration. Reasoning abilities and scientific thinking. The development of conceptual understanding through integrated curricula (physics, chemistry, biology, and technology).

#### **EDU 665 Environmental Education**

Teaching methodologies in environmental education. Objectives of environmental education. Environmentally literate citizens. Environmental values. Theories of pro-environmental attitudes and behaviour. Building teachers' capabilities for evaluating and selecting educational material. Development and implementation of environmental education projects.

#### EDU 666 Cognitive Science and the Teaching of Natural Sciences

Cognitive science is a rather new scientific approach that examines the cognitive processes of intelligent beings from a variety of different perspectives, such as philosophy, psychology, neuroscience, linguistics, artificial intelligence, and dynamic systems theory. These perspectives converge in cognitive science in terms of applying different methods to the investigation of reasoning. Recently, research findings from cognitive science have been implemented in education. This is a significant development, because these findings are directly related to education. The course emphasizes recent developments in cognitive science in relation to general education and science education in particular.

#### EDU 667 Development of Scientific Reasoning: Cognitive and Teaching Approaches

Analysis of scientific approaches and skills, such as linking data and hypotheses, the formulation and testing of hypotheses, and the identification and control of variables. In-depth examination of current research and different theoretical perspectives on understanding the development of scientific thought. Implications for the design and implementation of teaching approaches conducive to the development of scientific reasoning.

#### EDU 668 Theories of Knowledge Acquisition and the Process of Learning

This is a core course for other graduate programmes and is described above.

#### EDU 669 Design and Analysis of Educational Software Related to the Natural Sciences

Analysis of teaching/learning problems. Design of total solutions and information and communication technology tools. Development of microworlds simulating natural phenomena. Distance learning. Design and development of websites facilitating interaction and communication among distributed learning communities. Sequencing learning activities through synthesis of software resources. Evaluation of the effectiveness of educational software.

#### **EDU 682 Qualitative Research in Education**

This is a core course for other graduate programmes and is described above.

#### EDU 683 Educational Statistics with Applications of Statistical Packages

This is a core course for other graduate programmes and is described above.

#### EDU 689 Independent Study

Students conduct an independent study within their own interests under the guidance of a faculty member specializing in science learning.

#### EDU 751 Design of Research Proposals

Identification of real problems that are amenable to productive investigation. Formulation of research questions or hypotheses that are open to investigation based on evidence. Projects as part of wider programmes of research. Literature review. Identifying and labelling variables, constructing operational definitions. Research design. Reliability and validity. Approaches to data collection and analysis. The implementation of research findings in practice. The theoretical and educational implications of research.

#### EDU 752 Analysis and Implementation of Research Evidence

Multiple interpretations of research data. The complementarity of qualitative and quantitative approaches to data analysis. The selection of appropriate analytical techniques in relation to specific research objectives and data constraints. Validity and reliability of research findings. Critical analysis of research reports. Generalization of research findings to wider populations. Open questions for research and current research trends. Complementarity in different research approaches.

#### EDU 753 Teaching Models and Didactical Recontextualization of the Content of Natural Science

Principles of designing learning environments in physical science. School knowledge and its relation to children's ideas and the structure and content of the discipline. Informal and non-formal approaches to science education. Developmental appropriateness in the objectives of science learning. The role of curriculum resources in effective teaching interventions. Teacher preparation in science.

# **Contact Details**

#### **Programme Coordinators**

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# DIDACTICS AND METHODOLOGY OF MATHEMATICS

(JOINT DEGREE PROGRAMME OF THE UNIVERSITY OF CYPRUS AND THE UNIVERSITY OF ATHENS)

The Department of Education, the Department of Mathematics and Statistics of the University of Cyprus and the Department of Mathematics of the University of Athens, offer a postgraduate programme leading to a Master Degree in "Didactics and Methodology of Mathematics."

# Aim and Purpose of the Programme

This is a new programme designed specifically for students with an undergraduate degree in mathematics. It entails an enhanced number of course units, which will be fulfilled in special summer sessions at the University of Athens.

The duration of the programme is minimum two years and the tuition is 5,125 euro. The degree will be granted by the University of Cyprus.

#### **Structure of the Programme**

Nine (9) courses and three (3) seminars are required for the completion of the programme:

- six courses from the area of Didactics and Methodology of Mathematics
- one Statistics course
- two courses from the area of History Philosophy
- three seminars

#### **Structure of the Programme**

The structure of the programme and courses is as follows:

#### **OPTION A**

9 courses X 9 ECTS + 3 seminars X 3 ECTS = TOTAL 90 ECTS

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E	-15
Didactics of Mathematics	54
EDU 501 Teaching of Analysis	9
EDU 673 Mathematics Curriculum: Development and	
Evaluation	9
Didactics of Mathematics Theory	9
Mathematics Teaching through Problem Solving	9
Teaching Algebra and Geometry	9
Teaching Probability and Statistics	9
The Integration of New Technology in Teaching Mathematics	9

Mathematics Teaching and History of Mathematics	9
Mathematics Modelling	9
Methods of Research in Teaching Mathematics	9
Special Issues in Teaching Mathematics	9
History – Philosophy	18
EDU 503 Philosophy of Mathematics	9
EDU 504 Plato and Mathematics	9
MAS 523 Number Theory	9
MAS 540 Modern Methods for Teaching High-School Mathematics	9
MAS 584 Mathematics with Computer	9
Statistics	9
MAS 668 Topics in Probability-Statistics I	9
Seminars	9
EDU 736 Seminar of Didactics of Methodology of Mathematics I	3
EDU 746 Seminar of Didactics of Methodology of Mathematics II	3
EDU 766 Seminar of Didactics of Methodology of Mathematics III	3
TOTAL ECTS	90

Note: The codification of courses is based on the courses offered every semester. Also, courses from other porsgraduate programmes of the Department of Education and the Department of Mathematics and Statistics are offered.

# **Contact Details**

# **Programme Coordinators**

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# SPECIAL AND INCLUSIVE EDUCATION

# Introduction

Cypriot society, which for centuries has been multicultural due largely to the historical and geographical conditions of the island, has in the last 20 years become populated by an even wider range of nationalities than it has ever known before. This cultural diversity, which is due to legal and illegal immigration, intermarriage, internationalization, accession to the European Union, opening of the green line check points, new legislation, etc., has positively enhanced the social landscape of Cyprus. It also has a wide and direct impact on the education system.

Moreover, in recent years the Cypriot State has passed legislation (113(I)/99 law) that stipulates the integration of children with disabilities and special needs in the mainstream ordinary school. This has been a demand of parents and disability organizations for several decades now.

Although the Cyprus education system is working to implement and accommodate these recent social and legislative changes, it is as yet incapable of adequately responding to this new variety of students. The Education Department of the University of Cyprus proposes a series of undergraduate and postgraduate programmes to help the situation, preparing teachers to react and respond to this new reality in the state schools. The programme described below aims to educate teachers to handle difference in school, with an emphasis on students with disabilities.

It is envisaged that this programme will:

- a. Enhance the undergraduate courses directed to this new area in education in Cyprus
- b. Provide research opportunities in this very important and sensitive education area where very little has been done so far
- c. Educate students to fill the many and various important posts arising from the implementation of the new legislation. These have so far been staffed by non-specialised personnel, who lack the necessary qualifications
- d. Become part of the standard curriculum at the University of Cyprus

# **Programme Goals**

The programme intends to inform, educate and raise the awareness of graduates in primary and secondary education, professional educators or education candidates on issues of differentiation in education, disability and inclusive education.

Our graduates will be in a position to:

- a. carry out research in the area of inclusive education
- b. function as points of reference in mainstream schools (primary and secondary) for the successful implementation of integration
- c. contribute through their teaching and general presence in schools to a functional participation of children with difference in the mainstream classroom and the mainstream school
- d. produce educational material that targets differentiation of the curriculum in order to support difference and disability in the classroom and the school
- e. support the educational process that is offered in special units through contribution to the curriculum with production of educational material
- f. function as catalysts for integration in the general educational system of Cyprus
- g. continue onto graduate studies and research in the area of inclusive education

# **Structure of the Programme (90 ECTS)**

#### **OPTION A:**

7 taught courses x 9 ECTS (63 ECTS) + 3 seminars x 3 ECTS (9 ECTS) + Master thesis = 90 ECTS in total

#### **OPTION B:**

9 taught courses x 9 ECTS (81 ECTS) + 3 seminars x 3 ECTS (9 ECTS) = 90 ECTS in total

EC	-12
Compulsory Courses	18
EDU 542 Special and Inclusive Education in Cyprus	9
EDU 682 Qualitative Research in Education	9
or	
EDU 681 Advanced Educational Research Methods	9
Optional Courses 9 or	27
One (Option A) or three (Option B) of the following:	
EDU 601 Philosophical Aspects of Education	9
EDU 603 Comparative Education	9
PSY 610 Psychological Aspects of Education	9
EDU 618 Sociological Aspects of Education	9
EDU 637 The Theory and Politics of Multicultural Education	9
EDU 638 Bilingualism in Education	9

EDU 641 Education and Gender	9
EDU 645 Educational Policy	9
EDU 646 Globalisation, Cosmopolitanism and Education	9
EDU 647 Christian Humanocentrism and the Contemporary World	′ 9
Specialization Courses	36
Four of the following:	
EDU 541 The Pedagogy of Inclusion	9
EDU 543 Home-School Relations on the Edge of Difference	9
EDU 544 Inclusive Education and Technology	9
EDU 545 Disability in School and Society	9
EDU 546 Differentiation in the Inclusive Classroom	9
EDU 547 Evaluation in the Inclusive Classroom	9
EDU 548 Current Trends in Inclusive Education	9
EDU 639 Inclusive Education: the New Face of Special Education?	9
Seminars	9
EDU 737 Aspects of Inclusive Education I	3
EDU 747 Aspects of Inclusive Education II	3
EDU 767 Aspects of Inclusive Education III	3
Master Thesis	18
EDU 798N Master Thesis I	9
EDU 799N Master Thesis II	9
Total ECTS	90

# **Course Descriptions**

All courses are credited with 9 ECTS.

#### EPA 541 The Pedagogy of Inclusion

The course deals with pedagogy issues which facilitate the inclusion of the child with difference in the mainstream school and the mainstream classroom and support his/her functional and contributory presence in education.

#### EPA 542 Special and Inclusive Education in Cyprus

Historical development of special and inclusive education in Cyprus, internal pressures and external influences, information about the legislation, formulation of educational policy, dominant philosophy and school practice.

#### EPA 543 Home-School Relations on the Edge of Difference

The role of the school in the support of the child and his/her family, early intervention and education, political and educational role of the parents, coordination and cooperation of external factors, involvement of health and social security professionals, counseling of parents and education professionals.

#### **EPA 544 Inclusive Education and Technology**

Use of new technologies in support of disability. Support services of the Ministry of Education and cooperating services, Elearning and disability, specialized methods and models of sup-

port, theoretical approaches and practical applications, support of physical, sensory and mental disability, learning difficulties and technology, cooperation of pupils with and without special educational needs in technology and equipment.

#### EPA 545 Disability in School and Society

Social construction of disability. The role of education in the social reproduction of stereotypes and fears about difference and disability. Deconstruction of relevant stereotypes and biases. The role of the educator, the role of peers, the role of parents. Christianity and disability. Disability and Literature.

#### EPA 546 Differentiation in the Inclusive Classroom

Differentiation of the curriculum in order to offer more access to people with difference. Geographical access. Access to school activities. Access to the learning process. Access to the school society. Transfer from preschool to primary education, from primary to secondary and from secondary to university education.

#### EPA 547 Evaluation in the Inclusive Classroom

Differentiation of the evaluation based on the differentiated curriculum. Preparation of multi-level evaluation instruments. Evaluation in the preschool, primary and secondary education. Difference and competition. Meritocracy and justice in evaluation. The notion of the 'observer' and the role of evaluation.

#### **EPA 548 Current Trends in Inclusive Education**

Contemporary theories about difference and disability. The social model. Postmodernism. Feminist theories. The importance of politics. The value of personal experience. From the institution and the special school to Disability Studies.

#### **Contact Details**

#### **Programme Coordinators**

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#### LANGUAGE PEDAGOGY

#### Aim of the Programme

The aims of this M.A. programme are to provide educators with the required theoretical, methodological and research background in Language Pedagogy and to set the foundations for the production of research in this area. The program aims to cater to the Cypriot education community's strongly expressed need for specialisation in aspects of Greek language and language teaching methodology.

## **Structure of the Programme**

Completion of the programme requires 90 ECTS. Students may take one of the following options:

#### **OPTION A:**

9 courses x 9 ECTS + 3 seminars x 3 ECTS = Total 90 ECTS

	ECTS
CYCLE A	
One course in education research (compulsory)	9
CYCLE B	
Two compulsory courses and four	
limited-choice electives	54
CYCLE C	
Two free elective courses from other postgraduate	
programmes in the department (one can be an independ	dent
study course)	18
CYCLE D	
Three postgraduate seminars	9
Total	90
OPTION B:	
' courses x 9 ECTS + 3 seminars x 3 ECTS + Master 18 ECTS) = Total 90 ECTS	<sup>-</sup> Thesis
	ECTS
CYCLE A	
One course in education research (compulsory)	9
CYCLE B	
Two compulsory courses and four limited-choice elective	es 54
CYCLE C	

Three postgrac	luate seminars	9

# MASTER THESISDissertation I and II18Total90

# **Programme Details** OPTION A:

	ECTS
CYCLE A	
Education Research	9
Students must choose one of the following:	
EDU 681 Advanced Methods in Education Research	9
EDU 682 Qualitative Research in Education	9
EDU 683 Education Statistics	9
CYCLE B	
Two compulsory courses (18 ECTS) and four limited-choice electives (36 ECTS)	54
Compulsory Courses (2)	
EDU 521 First Language Acquisition	9
EDU 522 Contemporary Approaches to Literacy Developme	ent 9
Limited-choice Courses (4)	
EDU 523 The Development of Semantic, Pragmatic and	
Communicative Competence	9
EDU 524 Text Linguistics-Multiliteracies	9
EDU 525 leaching the Structure of Language	9
EDU 526 leaching Literature	9
EDU 527 Capitalising on Language Variation in Education	9
EDU 528 Second Language Acquisition	9
Attitudes, Trends and Perspectives	9
CYCLE C	
Free Elective Courses	18
Two free elective courses from other postgraduate	
programmes in the department (one can be an independe study course)	ent
Courses Suggested:	
EDU 601 Philosophical Dimensions of Education	9
EDU 603 Comparative Education	9
EDU 605 Postmodernity and Education	9
EDU 611 Theory of Curriculum Development	9
EDU 618 Sociological Dimensions of Education	9
EDU 637 Theory and Practice of Intercultural Education	9
EDU 639 Inclusive Education: The New Face of Special Education	9
EDU 641 Gender and Education	9
EDU 646 Globalisation, Cosmopolitanism and Education	9
EDU 689C Independent Study	9
EDU 781 Discourse Analysis of Student-Teacher Interaction	ו 9

# CYCLE DThree Postgraduate Seminars9Seminars Suggested:EDU 738 Language Pedagogy I3EDU 748 Language Pedagogy II3EDU 768 Language Pedagogy III3

# **OPTION B:**

9

CYCLE A	
Education Research	9
Students must choose one of the following:	
EDU 681 Advanced Methods in Education Research	9
EDU 682 Qualitative Research in Education	9
EDU 683 Education Statistics	9
CYCLE B	
Two compulsory courses (18 ECTS) and four limited-choice electives (36 ECTS)	54
Compulsory Courses (2)	
EDU 521 First Language Acquisition	9
EDU 522 Contemporary Approaches to Literacy Development	: 9
Limited-choice Courses (4)	
EDU 523 The Development of Semantic, Pragmatic and Communicative Competence	9
EDU 524 Text Linguistics-Multiliteracies	9
EDU 525 Teaching the Structure of Language	9
EDU 526 Teaching Literature	9
EDU 527 Capitalising on Language Variation in Education	9
EDU 528 Second Language Acquisition	9
EDU 529 Monolingual, bilingual, multilingual education: attitudes, trends and perspectives	9
CYCLE C	
Three Postgraduate Seminars	9
Seminars Suggested:	
EDU 735 Language Pedagogy I	3
EDU 745 Language Pedagogy II	3
EDU 765 Language Pedagogy III	3
MASTER THESIS (18 ECTS)	
EDU 798C M.A. Dissertation I	9

EDU 799C M.A. Dissertation II

# **Course Descriptions for Cycle B**

(compulsory and elective courses)

The courses in this cycle aim to:

- a. Offer the necessary linguistic training that will enable educators to comprehend the processes of children's language development. Although in recent decades research in language acquisition has been developing rapidly, the study of the structural features of the language of Greek-speaking children is still in its initial stages. The relevant courses offer a sound theoretical understanding that will lead to further research and production of scientific knowledge in this area.
- b. Examine the notions of communicative competence and the various aspects of literacy in relation to contemporary sociolinguistic and anthropological approaches and the frameworks of Discourse Analysis and Text Linguistics. The aim of these courses is twofold: on the one hand to offer the necessary theoretical understanding in an area in which relevant research related to the Greek language is still emerging, and on the other hand to bridge the gap between the narrow concept of literacy offered by the current curricula and the multifaceted reality of literacy in contemporary societies, which ought to be promoted in pedagogical practice.
- c. Study a wide variety of teaching practices and methodologies, ranging from teaching the structural elements of language to teaching literature. The aim of this group of courses is the critical positioning towards the existing approaches and methodologies from both a scientific and a practical perspective.
- d. Cover the area of bilingual and multilingual education, with a twofold target: first, to offer a wider understanding of the related theoretical concepts (bilingualism, interlanguages, underlying linguistic competence); second, to provide educators with practical preparation and reinforcement to ensure both their understanding of the socio-cultural dimensions of bilingualism and their competence in deploying these effectively in a multilingual and multicultural classroom.

#### **Compulsory Courses**

All courses are credited with 9 ECTS.

#### EDU 521 Introduction to First Language Acquisition

This course examines basic aspects of child language, with special emphasis on stages of linguistic development in the preschool years and on mainstream approaches to child language development such as behavioural and cognitive approaches, nativism, connectionism and interactionism. The focus is on the acquisition of Greek L1, but comparisons with other languages are also attempted as required. The course examines the developmental trajectory of phonetics/ phonology, morphology and syntax on the basis of models such as Lexical and Government Phonology, Optimality Theory and the Principles and Parameters framework.

#### EDU 522 Contemporary Approaches to Literacy Development

The course examines the processes of reading and writing development and it suggests ways of systematising the transitions (a) from pre-reading to reading skills, (b) from decoding to reading and (c) from emergent to developing literacy. The course further examines the cognitive and other skills required for the reception and production of varying genres and the sociocultural practices of communication and literacy development in children. The differences between "oral" and "literate" culture and thought are examined in detail, as are cultural differences in the role of language as a means of socialisation and integration in the school community.

#### **Limited-choice Electives**

All courses are credited with 9 ECTS.

#### EDU 523 The Development of Semantic, Pragmatic and Communicative Competence

This course addresses the development of semantic competence and the processes of lexical acquisition in the L1, implementing insights from structural semantics, generative and cognitive semantics, and, crucially, Theory of Mind. The structure of the vocabulary of Greek is examined in detail, as are issues of etymology, derivation, compounding and borrowing. The course also offers a critical overview of approaches to vocabulary teaching. With regard to the development of pragmatic and communicative skills in children, the course uses insights from formalcognitive pragmatics/Relevance Theory, Discourse/Conversation Analysis and interactionism.

#### EDU 524 Text Linguistics-Multiliteracies

The course discusses in detail the concept and principles of textuality (cohesion, coherence, intentionality, acceptability, informativity, situationality and intertextuality), with special emphasis on the sociocognitive processes of text production and reception. The course looks critically at the constructs of genre and text type and their metalinguistic import for reception, as well as their sociolinguistic dimensions. The course further examines dominant approaches to genre/critical literacy such as New Rhetoric, the Sidney School and the New London Group. The new dimensions of textuality and literacy introduced by communication technologies are discussed as alternative literacy resources, with a view to redefining traditional literacies and determining the nature of changes to language pedagogy so that it can address the needs of a multiliterate society.

#### EDU 525 Teaching the Structure of Language

The course examines the "prehistory" and history of language pedagogy, with special emphasis on the history of education and linguistic reforms in Greece and Cyprus. Major points of convergence and divergence among grammar-centered, text-centered and 'communicative' approaches to language teaching are critically discussed. A functional way of teaching language structure is proposed, following an in-depth examination of synchronic text-centered or 'communicative' grammars, with special emphasis on functional-systemic approaches.

#### EDU 526 Teaching Literature

This course examines the wider pedagogical principles and rationales for teaching literature in primary education; the ways in which literature teaching can be integrated in communicative teaching; the implementation of theoretical principles regarding literature through pedagogical practices. The concepts of writergenre-reader are studied and analyzed with a focus on readerresponse theory (Iser, Rosenblatt, Fish, Eco, etc.). Finally, the interaction and combination of image, music and text in teaching are examined.

#### EDU 527 Capitalising on Language Variation in Education

This course examines the social-semiotic dimensions of language in education, particularly in relation to the stated and hidden objectives of the national curricula and the wider language policies. The role of language in promoting literacy across the various disciplines of the curriculum is studied along with the dynamics of language and learning, with a special focus on situations involving language variation such as diglossia or multilingualism. Strategies for capitalizing on language variation in education are proposed, targeting the cultivation and development of metalinguistic and metacognitive skills based on the pedagogy of (social) constructivism.

#### EDU 528 Second Language Acquisition

This course examines bilingualism from a theoretical linguistic and a sociolinguistic perspective. Within theoretical linguistics the differences between bilingualism during the critical period and sequential bilingualism after the critical period are examined along with the concept of interlanguage. The concepts of subtractive bilingualism and semilingualism are also examined, as is the concept of common underlying language proficiency as suggested by Cummins. From a sociolinguistic perspective the attitudes of bilingual speakers, educators and language policy makers towards bilingualism and their consequences for pedagogical practices are examined.

#### EDU 529 Monolingual, Bilingual and Multilingual Education: Attitudes, Trends and Perspectives

This course examines the various existing models of bilingual education (partial or full bilingual education, immersion, etc.). These models are evaluated both from a theoretical perspective in relation to the theory of constructivism and the associated theories proposed by Cummins, and from a practical perspective in relation to the existing policies and pedagogical practices in Greece and in Cyprus. Pedagogical methods for handling and capitalizing on the linguistic, cognitive and communicative dynamism of a bilingual / multilingual classroom are proposed.

## **Contact Details**

#### **Programme Coordinators**

Elena loannidou Lecturer Tel.: 22892987 e-mail: ioannidou.elena@ucy.ac.cy

Stavroula Kontovourki Lecturer Tel.: 22892930 e-mail: kontovourki.stavroula@ucy.ac.cy

#### INTER-DEPARTMENTAL AND INTER-DISCIPLINARY SELF-FINANCED PROGRAMME IN GENDER STUDIES

#### **Programme Description**

The University of Cyprus Gender Studies postgraduate programme is inter-disciplinary, self-financed, and co-ordinated by the UNESCO chair and the Centre for Gender Studies board (as will be appointed at each time). The courses for the program are university-wide, and as such are offered by numerous University departments; in addition to University of Cyprus staff, researchers and scholars from around the world will also offer courses and seminars.

The programme is addressed to students with an accredited university degree from across the disciplines, and its structure seeks to combine excellence in education, innovative research, and a critical approach to not only theoretical issues, but also to more practical and concrete matters.

The Master degree can be completed in one academic year of full-time study, or in two-three academic years of part-time study; the degree requires 90 credit hours of taught course-work. The PhD program can be completed in three (i.e., six semesters) to eight (i.e., 16 semesters) academic years.

The degree programme is offered in either the Greek or the English language.

# **Aim of the Programme**

The main objective of this programme is to equip graduates with expertise in the field of Gender Studies, and the competence and skills suitable for a variety of careers. Graduates of the programme will be qualified to work in either the public or private sector, and in the capacity of executives, researchers and officials who manage, promote and investigate gender issues through an inter-disciplinary perspective.

The programme further aims to educate, train and prepare individuals who will be able to take on a leading role in the field of Gender Studies, and who will promote and develop gender-related issues in an innovative and creative manner across various academic disciplines within the framework of democratic values and current societal institutions.

More specifically, the programme aims to:

- Promote Gender Studies at a postgraduate and interdisciplinary level.
- Offer the specialized study of central texts in gender studies literature and research, as well as cover the EU literature and its body of publications on the subject of gender equality.
- Integrate research on the construction of gender within its historical and social context.
- Contribute to the development of modern and up-todate policies and policy frameworks on gender matters, through the production of related academic research and discourse.
- Support the fostering and development of leading personalities who will be able to work on the subject of gender equality in all its dimensions.

# **Structure of the Master Degree**

The programme consists of 90 ECTS which are distributed as follows:

#### **OPTION A:**

The programme includes seven courses, 2 core/ compulsory and 5 optional, and the production and submission of research work on a gender-related question, issue, matter or debate (compulsory). It also includes 3 postgraduate seminars, two of which will be pre-set and compulsory. Total number of credits: 7 courses x 9 ECTS + 3 seminars x 3 ECTS (9 ECTS) + dissertation (18 ECTS) = TOTAL 90 ECTS.

#### **OPTION B:**

27 ECTS in compulsory courses + specialization courses, 9 ECTS in common core courses, 3 seminars x 3 ECTS (9 ECTS) +54 ECTS elective courses = TOTAL 90 ECTS.

ECTO

	LCIJ
Compulsory Courses (18-27 ECTS)	
EDU 682 Qualitative Research in Education or	
EDU 683 Quantitative Research	9
GRS 629 Feminist Theory	9
Compulsory Seminars	

Two seminars are required upon advice of the supervisor, in addition to one that is defined every semester	
GRS 774 Seminar I: Academic Writing	3
GRS 775 Seminar II: Discourse Analysis	3
GRS 776 Seminar III: Queer Theory and the Study of Sexuality	3

#### Elective Courses (45-54 ECTS)

Elective courses include: a) courses which are already run by departments from across the University and could be offered for the Gender Studies programme (Group A) and; b) courses which are new and designed specifically for the Gender Studies postgraduate programme by the departments and schools (Group B). Further, a course from another postgraduate programme/or department may also be accepted as an elective course with the approval of the student's supervisor.

#### **Indicative List of Group A Courses**

The following are courses already offered in other postgraduate studies programmes at the University and which may be included in the Gender Studies programme. (each course is credited with 9 ECTS) GAL 503 Gender Theories GAL 580 Gender: A Reliable Category of Analysis? EDU 599 Gender Theories and the Politics of the Curriculum EDU 536 Religions and Gender EDU 641 Gender and Education SPS 613 Social Anthropology SPS 614 Sociology of Social Movements SPS 514 Feminist Theory PSY 722 Cross-Cultural Issues in Psychology BMG 535 Byzantine Masculinities and Femininities BMG 561 The Image of Women in Byzantine Literature ARC 562 Portraits of Women in Byzantine Art

BMG 544 Byzantine Outsiders

#### **Indicative List of Group B Courses**

Each department and Faculty will add to/ select courses to teach from the list.

- (each course is credited with 9 ects)
- GRS 689 Independent Course of Study
- GRS 601 Power, Ideology, Inequality
- GRS 602 History of Sexuality
- GRS 603 Critical Theory in Gender Studies
- GRS 604 Writing (and) Gender: Masculinity, Femininity and Beauty in Literature
- GRS 605 Psychoanalysis and Social Theory
- GRS 606 Queer Theory and Civil Rights
- GRS 607 Men and Masculinities
- GRS 608 Femininity and Masculinity
- GRS 609 Gendered Culture and the Socio-political Context: Issues and questions of power, regulation, control, patriarchy, familial and inter-familial discrimination
- GRS 610 Gender, Media and the Production of Knowledge
- GRS 611 Body, Gender, Sex in an Inter-cultural and Comparative Perspective
- GRS 612 Performativity: Performing Gender and the Concept of Performativity in Judith Butler's Gender Trouble
- GRS 613 Gender and the Cinema
- GRS 614 Gender and Mathematics
- GRS 615 Gender and Science
- GRS 616 Gender and Biology
- GRS 617 Gender and New Technologies
- GRS 618 Gender, Equality and the Law
- GRS 619 Gender Equality, Human Rights, Gender Equality and the Law
- GRS 620 Gender in Greek Letters and Literature
- GRS 621 Gender in Education
- GRS 622 Gender and the Economy
- GRS 623 Architecture and Perspectives on Gender: Place, Gender, Space
- GRS 624 "Masculinity", "Femininity", "Androgyny": Psychological Approaches to Gender Formation
- GRS 625 Work and Gender Identities; A Psychological Approach
- GRS 626 Work and Gender Identities: A Sociological Approach
- GRS 627 Violence Counselling
- GRS 628 Entrepreneurship, Administration and Gender
- GRS 629 Feminist Theory
- GRS 630 European Policy and Gender
- GRS 631 Visual Sources in Humanities and Social Sciences
- GRS 632 Contemporary Trends and Issues

#### Dissertation (18 ECTS)

GRS 798 Master Thesis I (9 ECTS) GRS 799 Master Thesis II (9 ECTS)

# Structure of the Ph.D. Programme

The following are required for the completion of the doctoral programme:

- Master degree
- Successful completion of courses totalling, 27 45 ECTS
- Success in a comprehensive examination, 33 ECTS
- Submission of a doctoral dissertation on an original subject matter/ a subject matter which makes an original contribution to knowledge
- Research (4 stages x 30 ECTS), 120 ECTS
- Doctoral dissertation
  - Dissertation Writing I (30 ECTS)
  - Dissertation Writing II (30 ECTS)

#### TOTAL: 240/258 ECTS

#### **List of Courses**

GRS 820 Comprehensive exams (33 ects) GRS 891 Research I (30 ects.) GRS 892 Research II (30 ects) GRS 893 Research III (30 ects) GRS 894 Research IV (30 ects.) GRS 895 Dissertation Writing I (30 ects) GRS 896 Dissertation Writing II (30 ects) Dissertation writing courses from stage III and above are credited with 0 ects.

# **Course Descriptions**

All courses are credited with 9 ECTS and seminars with 3 ECTS.

#### **GRS 629 Feminist Theory**

Study of the classic and founding texts of feminism; research and fundamental issues in feminist theory. Theoretical background in, and contemporary theoretical approaches to, gender studies. The historical, social and individual approach to gender. Contemporary philosophical approaches to gender and feminism.

#### **GRS 689 Independent Course of Study**

Aims to familiarize the students with texts and research data not covered by other courses.

#### GRS 601 Power, Ideology, Inequality

Comparative perspectives on inequality in different societies with the use of both a contemporary and a historical approach.

#### **GRS 602 History of Sexuality**

Investigates how sexual identity is presented, constructed and understood from the 19th century to the present day (from Freud to Foucault to the official documents and publications of the EU).

The course offers students a retrospective view of how gender and masculinity have become valid historical categories of analysis during the last three decades. Through the discussion of fundamental theories, currents and conceptions in the study of gender, the course aims to highlight the process through which the elaboration of gender as a field of inquiry has contributed to a re-thinking of traditional analytical categories as well as producing some entirely new approaches. To this end, the discussion on the 'historisation' of gender revolves around its relation to categories such as race, labour, violence, religion, economy, class, body, sexuality, age, hegemony and popular culture. There is a further special focus on the importance of feminist theorists and their role in the emergence of the study of masculinity.

#### **GRS 603 Critical Theory in Gender Studies**

The course examines central debates, positions and ideas in contemporary cultural theory, from Marxism to post-modernism (texts drawn from Freud, Klein, Lacan, Kristeva, Adorno, Fromm, Habermas, Žižek, Mitchell, Giddens and Althusser).

#### GRS 604 Writing (and) Gender: Masculinity, Femininity and Beauty in Literature

The course aims to study basic literary texts from the perspective of gender and its construction through literary and cultural representations. Texts are connected with the historical, social and cultural perspective from which they originate, so as to analyze and problematize the processes by which discourse constructs both gender and the ways we come to experience the gendered self.

#### **GRS 605 Psychoanalysis and Social Theory**

The course aims to study and foreground the complexity of the relationship between established psychoanalytical theories and feminist thought. It will especially refer to psychoanalytical theories such as Lacan's, which have been the specific target of feminist critics but have also served to establish certain feminist theories. Discussion and examination of the above points will have the purpose of better understanding, analyzing and employing these theories, as well as approaching them in a critical manner.

#### **GRS 606 Queer Theory and Civil Rights**

This course analyzes the relationship between the term "queer" and queer theory with the broader liberation movement brought about by feminism's turn towards demands for rights relating to gender and sexuality. It discusses those demands so that students are trained to advocate for the civil rights of individuals across the gender spectrum as well as argue for the legal protection of those rights, through a critical engagement with the above issues.

#### **GRS 607 Men and Masculinities**

Discusses and juxtaposes, initially, the essentialist view of masculine "identity" with post-modern feminism's own engagement with it. The framework of the course involves a discussion of the school's part as an arena of hyper (hetero) sexuality, where multiple formations of masculinities are constructed and simultaneously (re) constructed. At the same time, the course debates and critically approaches the various mechanisms through which homophobic policing and misogyny establish their presence within a variety of spaces and contexts.

#### **GRS 608 Femininity and Masculinity**

The course discusses the subject of gendered identities in adolescence within data and material from the relevant international literature. Also discusses the factors that influence the formation of gendered identities within the school, family life, the male and female experience, and within the relationships and interaction between genders.

#### GRS 609 Gendered Culture and the Socio-political Context: Issues and questions of power, regulation, control, patriarchy, familial and inter-familial discrimination

The course will emphasize the cross-temporal and socio-historical analysis of gendered culture and the socio-political context, based on the findings of feminist scholarship and research. Within this framework, it will also present, discuss and critically approach the findings of research which highlight the intense inter-relationship between the professional choices of young people, their views on family life, and the formation of gendered identities in adolescence.

#### GRS 610 Gender, Media and the Production of Knowledge

The framework for this course expands to an historical and critical overview of the dominant trends in the area of gender and the media, as this has been analyzed, recorded, and researched within international literature and scholarship. The course also presents the dominant trends within research and the problematics surrounding gender and the media, debating the dominant discourse which is articulated within those trends and problematics. Moreover, the course attempts to implicate the participant audience in the following three areas of concern: (a) investigation of the construction of sexuality and gender by and within the Cypriot media; (b) gender and media audiences and; (c) gender and new technologies.

#### GRS 611 Body, Gender, Sex in an Intercultural and Comparative Perspective

The course adopts an intercultural and comparative perspective for the analysis, description and critical examination of the terms sex, body, and gender. Those terms are examined not only with respect to meaning and content, but also with respect to their multiple usages in research as well as in the practices of everyday life.

#### GRS 612 Performativity: Performing Gender and the Concept of Performativity in Judith Butler's Gender Trouble

The course aims to analyze Judith Butler's feminist theory, emphasising the analysis, critical evaluation, operation and implementation of the terms "performativity" and "performance". The problematic which is being articulated by Butler's work around the meaning of the term "gender" will be amplified, especially through the crititcism which has been directed towards it, for example, by Emile Durkheim and Michel Foucault.

#### GRS 613 Gender and the Cinema

The course studies the filmic representation of socially conceptualized gender relations and gendered identities within the varying socio-historical contexts. The course centralizes, analyzes, and critically engages with the variety of discourses on the meaning of terms such as "manhood" and "femininity" which may co-exist even within the same filmic narrative; at the same time, it establishes the problematic which relates to the ideological speculations of filmic narrative, and the ways these are not always unambiguous. With the study, critical thought on, and reconsideration of, the above issues, in tandem with creative debate, the course attempts to record and compare the rigid gender regimes within a variety of socio-historical contexts, and also to comment upon historical changes taking place in attitudes, ways of life and beliefs, as these are reflected within filmic narratives.

#### **GRS 614 Gender and Mathematics**

Gender-based differences in learning mathematics as well as in relation to beliefs and attitudes towards mathematics, and the social factors influencing them. International research output and the gender perspective on mathematics; gender and mathematics education. Strategies and planning for the development of a gender perspective in mathematical education.

#### **GRS 615 Gender and Science**

The course investigates gendered differences in cognitive development and performance in the sciences and the factors that influence them, with emphasis on international research output and paradigms on the interest, participation and performance results in the natural sciences across educational levels. It looks at strategies and planning that educators can use to address the gender aspect of natural sciences courses.

#### **GRS 616 Gender and Biology**

The course analyses the physiology of gender and the environment. New reproductive technologies; issues and debates in bioethics.

#### **GRS 617 Gender and New Technologies**

Issues related to gender and technologies: Feminist theories on technology; Gender difference in the use of information technology and the acquisition of competence and skills in information technology; study of these through an overview and analysis of international research literature; Technology as masculinised culture; Representations of gender, and the consequences of using gender to create and/ or reinforce sexist attitudes and conceptions.

#### GRS 618 Gender, Equality and the Law

The course examines the relationship between the law, the legal institutions and gender: The processes of gender construction through the law; Analysis of statutory law, law literature and jurisprudence on equality, the rule of law, and equality before the law.

#### GRS 619 Gender Equality, Human Rights, Gender Equality and the Law

The legal aspect of contemporary issues on gender equality; historical and contemporary approaches to the legal aspect of gender equality; quotas, sexual harassment, trafficking.

#### **GRS 620 Gender in Greek Letters and Literature**

Textual analysis based on the inequalities between genders in relation to the socio-historical context – such texts might include Antigone by Sophocles and Fonissa by Alexandros Papadiamantis.

#### **GRS 621 Gender in Education**

The course examines the way gendered and sexual identities are constructed and produced within the educational system. In particular, it will focus on subjects like the socialization of the two genders, gender and social class, media stereotyping, and the relationship between gender and success at school. Emphasis will also be placed on the processes of learning, organization and discipline within the school environment, which define the acceptable and appropriate manifestations of gendered sexuality and on the way this gives meaning to the gendered social stratification of contemporary societies.

#### **GRS 622 Gender and the Economy**

This course examines such issues as: participation of the genders in the labour market, the relationship between pay and gender, social welfare and gender, gender and business initiative, gender within the centres of decision-making, forms of employment and their relationship to gender. The course studies not only international literature but also European Union policies on these issues.

#### GRS 623 Architecture and Perspectives on Gender: Place, Gender, Space

The course investigates the gender dimension of designing, as well as the usage and reproduction of architectural space. Questions discussed include the extent to which the organization and allotment of space reflects and reproduces gendered social difference/ inequality and how difference/ inequality influence the design of space. The course engages in an interdisciplinary and inter-scientific approach, employing tools from various knowledge fields, including the history of architecture and the history of world cities, social sciences, geography, history and the sociology of science.

#### GRS 624 "Masculinity", "Femininity", "Androgyny": Psychological Approaches to Gender Formation

Introduces, presents and critically discusses the major psychological approaches to gender formation: Freudian theory, psychoanalysis post-Freud, Lacanian theory and theorization; Nancy Chodorow's object-relations theory; Albert Bandura's and Walter Mischel's theory of social learning; Lawrence Kohlberg's theory of cognitive development; Gender schema theory; Sandra Bem's theory of psychological androgyny. Moreover, the course engages with feminist criticism and disputation which goes in tandem with theories such as the above.

#### GRS 625 Work and Gender Identities; A Psychological Approach

The course examines the way gendered identities are formed and produced within the workplace. The question is examined on the basis of the various psychological theories that relate to identity formation and the theorizing of work and the workplace.

#### GRS 626 Work and Gender Identities: A Sociological Approach

The course examines the way gendered identities are formed and produced within the workplace. The question is studied on the basis of sociological approaches to labour and work and the theorizing surrounding the workplace and work. It examines the role of gender stereotyping in the choice of profession, and also gender discrimination within the workplace.

#### **GRS 627 Violence Counselling**

The subject examines the multiple forms of violence as well as the causes and various effects of violence on victims and perpetrators. Further, it studies the role counselling can assume in the prevention of, and response to, violence, along with the forms of support available through counselling.

#### GRS 628 Entrepreneurship, Administration and Gender

Examines the concepts of business initiative and business management and the part they play as contributing factors to the development of the economy and society in general. Highlights and studies those dimensions and frameworks which are genderrelated and can contribute to the creation of effective services and to the provision of appropriate education and training on issues of business initiative and administration, as these are related to, and affect, gender.

#### **GRS 630 European Policy and Gender**

The course presents, analyses and critically investigates European Union policy, including the policies of Equality, Positive measurements, and Gender mainstreaming. It employs a critical approach to the theory-practice divide.

#### **GRS 631 Visual Sources in Humanities and Social Sciences**

During the last three decades the discussions among social scientists over the effects and nature of "visual culture" have provided original insights into how technologies and imaging systems have had profound implications for the way we create, record, manipulate, circulate, store, interpret, remember, and use information. This course aims to highlight the importance of visual sources in the humanities and social sciences and explain the ways in which researchers can locate, evaluate and interpret visual sources. Learning how to use a "critical visual methodology" will improve significantly the students' research skills and enable them to use photographs, works of art, films, maps, advertisements to answer questions on issues of identity, human relations, power and knowledge.

#### **GRS 632 Contemporary Trends and Issues**

The course investigates contemporary trends and issues regarding gender, equity, equality and gender mainstreaming in the contemporary society

#### **GRS 774 Academic Writing**

The seminar aims to help students develop the academic writing skills necessary to write a postgraduate (master) dissertation: that is, it instructs students on the organization of the text, the presentation of the argument and the discussion of evidence, argument and material, the presentation of data, establishing conclusions, referencing and how to avoid plagiarism.

#### **GRS 775 Discourse Analysis**

The seminar analyzes and examines interdisciplinary discourse through a variety of ways, and also analyzes discourse as a composite part of the social milieu and social institutional structures.

#### GRS 776 Queer Theory and the Study of Sexuality

The seminar aims to introduce students to queer theory and the study of sexuality by contextualizing the term "queer" and queer theory within the broader liberation movement and the demands for rights relating to gender and sexuality.

Detailed descriptions of the following courses may be found in the postgraduate programmes for each department:

ARC 562 Portraits of Women in Byzantine Art

BMG 535	Byzantine	Masculinities	and Femir	inities

BMG 544 Byzantine Outsiders

BMG 561 The Image of Women in Byzantine Literature EDU 536 Religions and Gender

EDU 599 Gender Theories and the Politics of the Curriculum

- EDU 641 Gender and Education
- EDU 682 Qualitative Research in Education or EDU 683 Quantitative Research

GAL 503 Gender Theories

GAL 580 Gender: A Reliable Category of Analysis?

PSY 722 Cross-Cultural Issues in Psychology

SPS 613 Social Anthropology

SPS 614 Sociology of Social Movements

SPS 514 Feminist Theory

# **Contact Details**

#### **Programme Coordinator**

Mary loannides-Koutselini Professor Chairperson, Department of Education Chair holder of the UNESCO Chair in Gender Equality and Women's Empowerment Tel.: 22892959, 22892958 e-mail: edmaryk@ucy.ac.cy http://www.ucy.ac.cy/goto/scienceed http://www.ucy.ac.cy/goto/unesco

# **Research Interests of the Academic Staff**

#### Charalambos Charalambous

Lecturer

Research focuses on: assessing/measuring the quality of teaching with emphasis on high-leverage teaching practices and the cognitive level of the tasks implemented during instruction; factors contributing to educational effectiveness, including teacher knowledge and curriculum materials and their use; quantitative and qualitative research in exploring the quality of teaching; quality of teaching and student learning.

# Constantinos Christou Professor

#### Professo

Solution of mathematical problems, assessment in mathematics, the process of speeding up the comprehension of mathematical concepts, and beliefs concerning satisfactory performance in mathematics.

#### Miranda Christou

#### Assistant Professor

The role of educational systems in shaping questions of history and collective memory, pedagogical role of media representations of human pain and suffering, education and globalization, gender and education.

#### Constantinos Constantinou

#### Professor

The physics curriculum in secondary and tertiary education, the content of the science curriculum at the elementary level, educational technology with particular emphasis on the use of the computer as a cognitive tool and an educational medium, curriculum integration and creativity in the domain of science education.

#### • Iliada Elia

#### Lecturer

Mathematical problem solving, understanding of geometrical figures, the semiotic approach to learning mathematics especially in primary education, picture books and development of mathematical concepts, the role of gestures in the understanding of mathematical concepts by young children.

#### Stavros S. Fotiou

#### Associate Professor

Christian Education, Christian Ethics, Sociology of Christianity, Methodology of Teaching, Attitudes toward Christian Education.

# Athanasios Gagatsis Professor

Mathematics education: Epistemological, teaching and ontogenetic obstacles in relation to the learning of mathematical concepts; mistakes in mathematics and teacher attitudes; history of mathematical education; legibility of mathematical texts; learning difficulties in mathematics.

# Zelia Gregoriou

Assistant Professor

Philosophy of education (in particular, post-structuralist analysis of pedagogical discourses and educational practices; negotiation of cultural identities in educational contexts with regard to phenomena of diaspora, globalization and multiculturalism; postcolonial theory and education; theory and politics of multicultural education; performativity; mourning and/as memorialization.

# • Elena loannidou

Lecturer

Language pedagogy, language education policy, bidialectalism and education, developing multicompetence through language teaching, interrelations of language and identity, multilingualism and multiculturalism in education.

# Stavroula Kontovourki Lecturer

Research interests include: literacy and language arts education, use of socio-cultural and post-structural theoretical approaches and qualitative research methodology for the examination of literacy development and literacy practices, the performance of literate identities in and out of school, multimodality (textual and embodied), and the realization of literacy curricula in elementary classrooms.

# Konstantinos Korfiatis Assistant Professor

Methodology of environmental education projects, conceptual difficulties in ecology, evaluation of learning material, conceptual change and worldview theories, history and philosophy of science with an emphasis in biological sciences.

# Mary Koutselini

#### Professor

Curriculum development and evaluation, teaching methodology, school textbooks, development of metacognition.

#### • Leonidas Kyriakides Associate Professor

Associate Professor

School effectiveness and school improvement, baseline and value-added assessment, school self-evaluation, integrating formative and summative functions of educational evaluation, strategies for investigating construct validity.

#### Eleni Loizou

#### Assistant Professor

Research interests include: young children's humor and its impact on learning; involvement and empowerment of young children, teachers and parents in educational processes; language and early literacy; early childhood curriculum; infant, toddler development and practice, and teacher education.

# Maria Eliophotou-Menon Associate Professor

The use of rates of return in educational management, the influence of economic and sociological factors on the demand for higher education, factors influencing educational policy, and pre-service teachers' expectations with respect to school organisation and management.

# Demetra Pitta-Pantazi Associate Professor

Research focuses on the following areas: understanding the structure of mathematical thinking, the cognitive development of mathematical concepts, integration of new technologies in mathematics teaching and learning, mathematics curriculum, mathematical creativity, identification and education of gifted students in mathematics, cognitive styles and mathematical abilities, mathematics teacher education.

#### • Marianna Papastephanou Associate Professor

The modernism vs postmodernism debate in philosophy of education, knowledge interests and learning. Theories of subjectivity, language and culture and their application to education, social and critical theory of the Frankfurt School.

#### • Stavroula Philippou Lecturer

Research interests include: Curriculum Development; Theory and Methodology of Teaching; Theory, History and Sociology of Curriculum; Teacher Professional Identity and Official Curricula; Action Research; Curriculum Studies; European Education Policy and Curriculum; National and European Identity/Citizenship in Education; Social Studies Education; Citizenship Education.

#### Helen Phtiaka

Associate Professor

Educational legislation, policy and practice, the notion of difference in education, disability, inclusive education, globalisation.

#### Simoni Symeonidou

#### Lecturer

History, policy and practice of inclusive education in Cyprus and in other countries, Inclusive education and the curriculum, Inclusive education pedagogy, Teacher Education for Inclusion, Disability Studies in Education, Disability Studies.

# Charoula Angeli-Valanides

#### Associate Professor

The utilization of educational technologies in K-12, the design of computer-enhanced curricula, educational software design, teacher training, teaching methodology, online learning, and the design of learning environments for the development of thinking skills.
## Nicos Valanides

#### Associate Professor

Teacher training, methodology of teaching and curricula for science education, development of logical and scientific thinking, and development of scientific attitudes and appropriate educational interventions and environments.

## • Zacharias Zacharia

### Associate Professor

The use of computer-based simulations and inquiry-based experimentation as cognitive tools in science teaching and learning, the development of computer-enhanced curriculum in science, and their promotion.

## **Contact Details**

### **Department Secretariat**

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Penelope Kitsiou Tel.: 22892940 Fax: 22894488 e-mail: kitsiou.popi@ucy.ac.cy The mission of the Department is to provide quality legal education to the students and the legal world of Cyprus. The Department of Law is pioneer in the study of Cyprus law and its development within the European context.

The Department will offer the following postgraduate programmes, in the near future:

- Master of Law in the thematic fields of International Law and European Law
- Doctoral Programme in Law with Specialization in International Law, Private International / Comparative Private Law, European Law, International Law and Constitutional Law

The postgraduate programmes of the Department of Law are subject to approval by the relevant University bodies. The Department plans the supplementation of the above programmes with new specializations.



## Introduction

The Department of Law was founded in 2006. The study of law in the Department encourages critical legal thinking, through a combination of theory, specialist knowledge and practical spirit. The Department also promotes research. Its presence in international, European and domestic research activities is already strong – especially in the fields of criminal sciences, international law, European law, and international and European private law. The Department has been offering courses within the University of Cyprus since fall 2006. The undergraduate degree programme in law began in the academic year 2008-2009. The first postgraduate programmes are subject to approval by the relevant University bodies.

## **Postgraduate Studies in Law**

The first postgraduate programmes in law will focus on international and European law. European integration is impacting every aspect of Member State law, highlighting the need to study the various legal systems, and to understand their relevance to Cypriot law. These programmes will also build on the concentrated strength of the Department's faculty members.

The goals of the upcoming programmes are:

- to provide advanced legal studies to the legal world of Cyprus, and the surrounding area
- to offer specialized study of the international legal system and European integration, including their impact on the transformation of Cyprus law, and other legal systems
- to optimize the Department's contribution to the development of Cyprus law

## **Research Interests of the Academic Staff**

## Aristotle Constantinides Assistant Professor

Law of the United Nations (with emphasis on the Security Council), international security, international development cooperation, international protection of human rights, international humanitarian law and international criminal law.

#### • Nikitas Hatzimihail Assistant Professor

Private international law, international civil litigation and commercial arbitration; international business and trade law.

Comparative law and intellectual legal history (with emphasis on the western legal tradition, mixed legal systems, the law of the United States). General principles of private law, contract law, European private law; theory and comparative history of private law.

## Andreas Kapardis Professor

Criminology, Legal Psychology, Sentencing, Criminal Law.

## Constantinos Kombos Assistant Professor

### Assistant Professor

His research interests focus on comparative legal methodology and on the organising premise of constitutional coexistence at the supranational level. Therefore, the emphasis is on Public law and Constitutional law at the national level and on the impact that the constitutional frameworks at the post-national level have on municipal legal orders. The European Union as a legal structure represents the working framework for analysis, with the focal point of analysis being the dynamics of the relationships between different judicial poles. In addition, the range of research interest includes the idea of judicial lawmaking in the process of constitutional jurisprudence and the guiding factors that formulate judicial reasoning.

## Charalambos Papacharalambous Assistant Professor

Criminal Law.

## Tatiana-Eleni Synodinou

Assistant Professor

Intellectual Property Law, Information Technology Law, Media Law, Land Law, Private Law, Commercial Law.

## **Contact Details**

## **Coordinator of Postgraduate Studies**

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# Psychology

The Psychology Department currently offers postgraduate programmes leading to the Master degree in the areas of:

- 1) Applied Programme in School Psychology
- 2) Theoretical Programme in Cognitive Educational Psychology
- 3) Theoretical Programme in Social Developmental Psychology

Students may apply for admission to one of two tracks: the research/theoretical track (Cognitive Educational or Social Developmental), which entitles them to continue their studies at Ph.D level; the professional practice track (APSC), which allows them to register and work as professional school psychologists. For admission into the APSC track an undergraduate degree in Psychology is a requirement.

The Department also offers two doctoral programs that result in a Doctorate of Philosophy:

- Doctorate in Psychology
- Doctorate in Clinical Psychology

## **Admission Requirements**

For information on the application procedure and admission requirements, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, candidates are requested to submit any certificates and/or other documentation that prove fluency in the English language, and any other documentation they consider necessary to strengthen and further support their application for admission, such as articles, research reports, academic distinctions, and any other relevant information.

## APPLIED MASTER DEGREE IN SCHOOL PSYCHOLOGY

## **Programme Description**

The Master in School Psychology is a 3-year programme comprising 180 ECTS that includes supervised clinical training (60 ECTS or 1500 hours). The programme was created based on the current professional demands and trends in the education and clinical training of professional psychologists and school psychologists. Furthermore, the programme ensures that the graduates are eligible to become licensed in Cyprus in accordance with the Cyprus Law for Professional Psychologists, and, in Europe, according to the published European Directive. The programme also gives the option for continuing graduate studies on a Doctorate level.

The programme is primarily based on the professional psychologists model of education. Consequently, it emphasizes the development of professional skills for the practice of psychology while offering a wider theoretical and research background to the graduate student. During the first year of studies, the programme aims to provide the student with the necessary theoretical and methodological background of psychological knowledge. In the second year, the programme consists of specialized coursework that will help the student develop important clinical and professional skills in the area of psychological assessment and intervention. The third and last year of the programme allows the student to integrate theory and practice and it centers on clinical training via clinical internship practica, combined with professional seminars and graduate research. Furthermore, students who wish to gain research knowledge and skills beyond what the programme requires have the opportunity to take additional independent research ECTS and complete a Master thesis. This is recommended for students who are considering pursuing a doctoral degree in the future.

According to the Cyprus law, a school psychologist must fulfill the required qualifications (academic and clinical) in order to be included in the official registry of the Cyprus Professional Psychologists. The applied programme reguires specialized skills and knowledge that enable the assessment and prevention of, and intervention in, psychological and learning problems. Furthermore, in the context of an applied programme it is expected that the graduate student will acquire the methodological knowledge and research skills required to evaluate intervention and prevention programmes. Finally, an essential part of the education of a school psychologist is the gradual development of professional skills through the supervised clinical practicum and, thus, the graduate student is required to complete at least 1500 hours of supervised clinical practicum in appropriate professional settings before graduating.

For all the reasons mentioned above, the School Psychology Programme has a minimum duration of three years of full-time attendance.

#### **Structure of the Programme**

The programme comprises 2 compulsory courses and 13 elective courses each corresponding to 7.5 ECTS, a compulsory graduate research study sequence (7.5 ECTS), a clinical practicum sequence (60 ECTS) and the final comprehensive examination of professional knowledge.

	ECTS
Compulsory Courses	15
PSY 604 Multivariate Statistics for the Behavioral Science	es 7.5
PSY 705 Diagnostic Intellectual Assessment of Children a	and
Adolescents	7.5
Compulsory Clinical Practicum	60
PSY 698 Clinical Practicum Seminar I	5
PSY 699 Clinical Practicum Seminar II	27.5
PSY 700 Clinical Practicum Seminar III	27.5
Compulsory Graduate Research Study	7.5
PSY 622 Graduate Research Study I	2.5
PSY 623 Graduate Research Study II	2.5
PSY 624 Graduate Research Study III	2.5
PSY 688 Professional Comprehensive Examination in School Psychology	0

#### **Elective Courses\***

I. Theoretical Background of Psychology	37.5
Five of the following courses:	
PSY 601 Ethical and Professional Topics	
in Educational Psychology	7.5
PSY 603 Child and Adolescent Psychopharmacology	7.5
PSY 619 Intelligence: Development and Evaluation	7.5
PSY 637 Social Development and Social Settings or PSY 653	7.5
PSY 706 Neurophysiology	7.5
PSY 711 Psychopharmacology	7.5
PSY 715 Language Development and Language Disorders	7.5
PSY 722 Cross-Cultural Issues in Psychology	7.5
PSY 730 Neuropsychological Assessment	7.5
II. Psychological Evaluation Courses	22.5
Three of the following courses:	
PSY 605 Psychometrics	7.5
PSY 615 Early Diagnosis and Intervention for Reading	
Disabilities	7.5
PSY 642 Child and Adolescent Psychopathology	7.5
III. Psychological Intervention Courses	37.5
Five of the following courses:	
PSY 610 Psychology of Education	7.5
PSY 614 Psychological Interventions in the Schools I	7.5
PSY 617 Counselling Psychology	7.5
PSY 652 Preventative Interventions at the School	7.5
PSY 701 Psychology of Instruction	7.5
PSY 708 Analysis and Modification Behavior	7.5
PSY 713 Experimental Psychology	7.5
PSY 714 Psychological Interventions in the Schools II	7.5
* It should be noted that the list is not exhaustive. More courses will added in the future according to the needs of the programme.	be

#### **Elective Graduate Research Study**

(additional to the 120 ECTS)	
PSY 625 Graduate Research Study	7.5
PSY 626 Graduate Research Study	7.5
PSY 627 Graduate Research Study	7.5
PSY 749 Qualitative Research Methods in Psychology	7.5

#### **Supervised Clinical Practicum**

During the supervised clinical practicum year, students will be placed in a public or private Psychological Centre, approved by the Department, where they can be supervised by a gualified and licensed psychologist. The clinical practicum comprises two phases. Phase one (approximately 200 hours) is a part-time placement and is completed during the fourth semester of studies concurrently with the Clinical Practicum. During this phase, students are expected to observe experienced and licensed psychologists performing their various professional activities and at the same time become familiar with the school system and the psychological methods of assessment and intervention. Phase two (approximately 1300 hours) is a fulltime clinical placement taking place during the third year of studies in parallel with the corresponding courses Clinical Practicum Seminars II (fall semester) and III (spring semester). During this phase, the student is expected to participate in case assessments and intervention programmes, as well as to engage in prevention programmes under the supervision of licensed psychologists. The supervision and development of clinical skills is an individualized process and student clinicians will have weekly meetings with their supervisor to discuss their skill development. Students will be evaluated by their supervisor, the Clinical Practicum coordinator and the Department of Psychology through Clinical Practicum Seminars I, II and III.

#### **Graduate Research Study / Master Thesis**

The participation in a graduate research study is required for all students in the School Psychology programme. The goal of the research participation is to help students develop skills that will allow them not only to read research critically but also to design and produce clinical research. These skills are necessary for students who wish to continue their studies at a Doctoral level. Students are reguired to complete 7.5 ECTS of graduate research study under the supervision of a faculty member (D.E.P.) or other research-instructive staff. The research project which must be brief (e.g., an extended case study or a small empirical research article) but of high guality (be publishable) according to the judgment of a three-member examining committee of the Department. The 7.5 required ECTS are distributed over 3 semesters so that sufficient time is allowed for the development and execution of a research proposal.

Students have the possibility to select up to 30 ECTS, of which only 7.5 are compulsory, for the completion of the

Master programme. The elaboration of a complete and extended Master thesis is optional for students on the professional track. It requires a supervisor who is necessarily a member of D.E.P.

A full Master thesis is carried out in two or three semesters as follows: PSY 742 Master Thesis I (15 ECTS), PSY 743 Master Thesis IIA (15 ECTS) and PSY 744 Master Thesis IIB (15 ECTS). Course PSY 742 is prerequisite for course PSY 743; course PSY 743 is prerequisite for course PSY 744. Students on the professional track who choose to complete a Master thesis are credited with 45 ECTS (that is, they need more credits to graduate than those who do not complete a Master thesis). The completion of a Master thesis is recommended for students interested in continuing their studies at a Doctoral level. Students who choose to carry out a thesis will be exempt from the research study course sequence (a total of 7.5 ECTS).

#### **Monitoring of Progress**

At the end of each year in the School Psychology programme, members of the clinical faculty (D.E.P.) of the Department, together with the Clinical Practicum Coordinator evaluate the progress of each student in the following areas: a) course performance, b) performance in the clinical practicum, c) ethical and professional conduct, d) progress and performance in research, e) personal development. The student will receive written or oral feedback on his/her progress that will include mention of the areas of strength and areas for further development.

### **Portfolio**

During their professional training students must create a portfolio including at least the following: a) Curriculum Vitae, b) personal statement that focuses on the process of introspection and self-criticism regarding their strengths and weaknesses and refers to their professional goals, c) three samples of psychological reports, d) two written samples of psychological intervention cases.

#### PSY 688 Professional Comprehensive Examination in School Psychology

In order to graduate, students must successfully pass a comprehensive examination, which they may take when: (1) they have adequately completed their portfolio; (2) they have provided evidence that they have completed at least 1500 hours of supervised clinical practicum; and (3) they have fulfilled the goals of the clinical practicum as

these are described in specific materials provided by the Department's Clinical Practicum Coordinator.

The comprehensive examination will be given orally and on an individual basis before a three-member committee of professional psychologists. Specifically, the Committee will consist of the Clinical Practicum Coordinator, a member of the Department's faculty and an invited member. The comprehensive examination aims to evaluate the professional knowledge of the students in case management and, consequently, their readiness to practice as psychologists in an ethical, legal and professional manner. The comprehensive examination will be evaluated as Pass/Fail and the grade will appear on the student's transcript. In case of failure, the Department may ask the student to engage in further academic activities and/or additional supervised clinical practicum, if necessary. The student will be allowed to retake the examination up to two more times in corresponding exam periods.

## **Programme of Studies**

	ECTS
First Year	
Fall Semester	
PSY 604 Multivariate Statistics for the Behavioral Science	s 7.5
PSY 619 Intelligence: Development and Evaluation	7.5
PSY 706 Neurophysiology <b>or</b>	
PSY 603 Child and Adolescent Psychopharmacology or	
PSY 711 Psychopharmacology	7.5
PSY 605 Psychometrics	7.5
Total	30
Spring Semester	
PSY 642 Child and Adolescent Psychopathology	7.5
PSY 715 Language Development and Language Disorder	rs
or	
PSY 730 Neuropsychological Assessment	7.5
PSY 637 Social Development and Social Settings	7.5
PSY 601 Ethical and Professional Topics	
in Educational Psychology	7.5
Total	30
Second Year	
Fall Semester	

raii Semester	
PSY 615 Early Diagnosis and Intervention of Reading	
Disabilities <b>or</b>	
PSY 652 Preventative Interventions at the School	7.5
PSY 705 Diagnostic Intellectual Assessment of Children and Adolescents	

PSY 614 Psychological Interventions in the Schools I	7.5
PSY 708 Analysis and Modification Behavior	7.5
Total	30
Spring Semester	
PSY 610 Psychology of Education <b>or</b> PSY 617 Counselling Psychology	7.5
PSY 701 Psychology of Instruction	7.5
PSY 714 Psychological Interventions in the Schools II	7.5
PSY 698 Clinical Practicum Seminar I	5
PSY 622 Graduate Research Study I	2.5
Total	30
Third Year	
Fall Semester	
Fall Semester PSY 699 Clinical Practicum Seminar II	27.5
Fall Semester PSY 699 Clinical Practicum Seminar II PSY 623 Graduate Research Study II	27.5 2.5
Fall Semester PSY 699 Clinical Practicum Seminar II PSY 623 Graduate Research Study II Total	27.5 2.5 <b>30</b>
Fall Semester PSY 699 Clinical Practicum Seminar II PSY 623 Graduate Research Study II Total Spring Semester	27.5 2.5 <b>30</b>
Fall Semester PSY 699 Clinical Practicum Seminar II PSY 623 Graduate Research Study II Total Spring Semester PSY 700 Clinical Practicum Seminar III	27.5 2.5 <b>30</b> 27.5
Fall Semester         PSY 699 Clinical Practicum Seminar II         PSY 623 Graduate Research Study II         Total         Spring Semester         PSY 700 Clinical Practicum Seminar III         PSY 624 Graduate Research Study III	27.5 2.5 <b>30</b> 27.5 2.5
Fall Semester         PSY 699 Clinical Practicum Seminar II         PSY 623 Graduate Research Study II         Total         Spring Semester         PSY 700 Clinical Practicum Seminar III         PSY 624 Graduate Research Study III         Total	27.5 2.5 <b>30</b> 27.5 2.5 <b>30</b>
Fall Semester         PSY 699 Clinical Practicum Seminar II         PSY 623 Graduate Research Study II         Total         Spring Semester         PSY 700 Clinical Practicum Seminar III         PSY 624 Graduate Research Study III         Total         Total         Total         Total	27.5 2.5 <b>30</b> 27.5 2.5 <b>30</b> 112.5
Fall Semester         PSY 699 Clinical Practicum Seminar II         PSY 623 Graduate Research Study II         Total         Spring Semester         PSY 700 Clinical Practicum Seminar III         PSY 624 Graduate Research Study III         Total         Total of compulsory academic ECTS         Total of compulsory applied/clinical ECTS	27.5 2.5 <b>30</b> 27.5 2.5 <b>30</b> 112.5 60

## **Course Descriptions**

All courses are credited with 7.5 ECTS.

#### PSY 601 Ethical and Professional Topics in Educational Psychology

The psychologist's ethical code will be discussed in regard to applied psychology. Ethical dilemmas (double relationships, presents, confidentiality, duty to protect), and legislative issues regarding assessment, treatment and special education will be presented. Other issues include legislature regarding the profession, professional endorsement, cooperation with other professionals and organisation of Educational Psychology as a field.

#### PSY 603 Child and Adolescent Psychopharmacology

Basic psychopharmacology with special emphasis on the medications that are most often prescribed to children and adolescents, their action and their consequences. Review of the neurological basis of functions such as memory, attention, and emotion with emphasis on the neurochemistry of the above functions and psychological dysfunction. Presentation of topics such as organic basis of attention difficulties, aggression, depression, eating disorders, etc., and current research on the effectiveness of psychological drugs.

#### **PSY 604 Multivariate Statistics for the Behavioural Sciences**

The course is designed to provide an integrated, in-depth and applied approach to multivariate data analysis and linear statistical models in psychological research. The focus will be on practical issues such as selecting the appropriate measures of analysis, preparing data for analysis, performing the analysis with SPSS, interpreting output and presenting research results. This course will provide an overview of some of the most common multivariate methods, namely: factor analysis, analysis of variance and covariance, multivariate analysis of variance and covariance, discriminant function analysis, multiple and logistic regression and cluster analysis. The course will strongly emphasize the applications of multivariate methods, rather than their theoretical derivation. All multivariate procedures will be discussed, analyzed, and interpreted in practical manner.

#### **PSY 605 Psychometrics**

This course is an overview of psychological tests and test construction, psychometric theories of intelligence, educational achievement, personality assessment and specific symptom assessment. It focuses on how to develop the assessment question and select the strategies and measures to answer it. The course also examines the impact of cultural diversity on assessment and identifies strategies to screen student populations for common issues, such as learning difficulties and emotional disorders. It includes topics on testing specific populations and for specific problems, and explains how test materials are integrated with clinical interviews and other assessment data.

#### **PSY 610 Psychology of Education**

This course presents the contribution that psychological research can make to educational practice and discusses relevant issues that concern classroom educators. It critically examines contemporary theories of human development and learning in order to apply this knowledge in educational settings and situations. Additionally, it examines topics such as individual differences, home/school relations and cooperation among the educational psychologist, teachers and parents.

#### PSY 614 Psychological Interventions in the Schools I

The course will focus on contemporary, empirically validated treatments for children and families and for classroom-based interventions in collaboration with the teacher. Interventions will include psycho-educational approaches, counseling, cognitivebehavioral and other scientifically based methods, with emphasis on their specific application in the school context.

#### PSY 615 Early Diagnosis and Intervention of Reading Disabilities

This course is offered to both Master and Doctoral students who have a strong background in learning disabilities. It addresses a number of issues including: review of recent research and literature in the field of learning disabilities; examination of research and theory as they relate to current practices; overview of psychological processes in learning to read; relationships among language processes, intellectual processes, and reading processes in beginning and skilled readers; common causes of reading disabilities and the biological or psychological etiologies associated with them; advanced research-based diagnostic assessment; and individual and group interventions for learners with such disabilities (including practice in diagnosis and treatment of case studies). Students, therefore, learn to (a) assess and identify specific reading disabilities and their implications for development and learning in the first years of life, (b) conduct assessment batteries, (c) interpret assessment findings and develop intervention plans, (d) provide remedial services for specific learning domains and practical recommendations, and (e) acquire skills in composing professional psychometric reports.

#### PSY 617 Counseling Psychology

This course will present the major counseling theories and the corresponding methods and techniques. More specifically, the following theories are critically discussed: Psychoanalytic (Freud), Neo Freudian/egopsychological (Erikson, Adler), rational- emotive (Ellis), Transactional (Burns), Behavioural (Wolpe, Dollard & Miller), Person-centered (Rogers), Existentialist (May, Frankl) and Gestalt (Perls). Special emphasis is placed on the process of the psychological interview.

#### **PSY 619 Intelligence: Development and Evaluation**

This course will inform students of the current research and theory in the area of cognitive development. Theories and models of cognitive change will be taught, as well as methods for determining conceptual change. Students will be required to study the relevant bibliography and present reports on relevant topics of the bibliography both orally and in written form. For practical experience, students will also be asked to participate in small-scale experiments with the models taught.

#### **PSY 637 Social Development and Social Settings**

This course gives students an introduction to classic and contemporary theories of human development that hypothesize development as a socio-psychological process. The course includes a historical review of theories that placed the theoretical bases of the contemporary socio-genetic approach to human development, e.g., the classic theories of Mead, Baldwin, Piaget and Vygotsky. There will also be in-depth discussions about recent meta-Piagetian theories of the Geneva social school, and about meta-Vygotskian theories such as those of Bruner, Rogoff, Wertsch and Valsiner.

#### PSY 642 Child and Adolescent Psychopathology

This course will review the most common disorders of childhood and adolescence with an emphasis on diagnostic criteria, developmental course, possible etiologies and the role of the environment in the development and maintenance of problem behaviours. Scientifically based treatments for these disorders will also be discussed.

#### **PSY 652 Preventative Interventions in the School**

The course focuses on the design, implementation and evaluation of preventative programs at the school level. It will emphasize prevention of personal, interpersonal and social problems, in a way that utilizes all resources of the school system including parents, teachers and students. The course will train the students in need assessment, and the clinical methodology required to design and implement a programme, and assess its effectiveness empirically.

#### **PSY 701 Psychology of Instruction**

This course is designed for graduate students in Educational Psychology who are interested in applied research and/or practice that aims to support and improve the instruction and the learning that takes place in schools. Learning is examined as a function of instructional practices in specific educational contexts and contents, and in relation to factors that have been found to influence it. Specific topics are organized into themes that include: (a) nature and conditions of classroom learning; (b) models of instruction, domain-specific instructional approaches, instructional effectiveness; (c) aptitude - treatment/method interactions; (d) alternative instructional and assessment approaches; (e) teacher knowledge and beliefs, expertise in teaching; (f) evaluation and intervention at the level of the school, the classroom, and the teacher. The course is supported by a selection of empirical articles in applied research and case studies on evaluation and intervention.

#### PSY 705 Diagnostic Intellectual Assessment of Children and Adolescents

This course examines the administration, scoring, interpretation, and research foundations of the major individual tests of intelligence and other objective assessments of cognitive function and behavior, including observation. Emphasizes the Wechsler scales and the measurement of child and adolescent intelligence. Each student will be required to administer a certain number of complete assessments. The course also develops report–writing skills.

#### **PSY 706 Neurophysiology**

Human behaviour results both from natural (biological) as well as exogenous (psycho-social) factors. This course will examine the basic structure, organization and function of the human nervous system particularly as these affect or modify behaviour. We will specifically study the following topics: anatomy of the brain, spinal cord, peripheral nerves and muscles; structure and function of neurons; the effect of neuro-transmitters, hormones, and other endocrinological factors. We will also examine the interactions of these biological systems and their effects on behaviour. The neuro-physiological basis of specific behaviours such as sleep, reproduction, memory, aggression, communication as well as mental disorders will be studied in detail. In addition we will review current research projects and findings that relate to the above.

#### **PSY 708 Analysis and Modification Behavior**

Learning theories and their application in behavior analysis as an assessment tool for children and adolescents. Protocols of observing and documenting behavior will be taught and empha-

sis will be placed on methods of behavior modification based on current research and theory. Methods presented include positive and negative reinforcement, schematization, emotional control, negative thought documenting and modification.

#### PSY 711 Psychopharmacology

Introduction to the benefit and action of various psychotropics as they are used in the treatment of various clinical syndromes in children, teenagers, adults, and the elderly. Beginning skills for assessing the need for psychoactive medications in helping diverse patient populations, as well as their ability and side effects.

#### **PSY 713 Experimental Psychology**

This course aims to offer students advanced knowledge and practice in designing, preparing and conducting psychology experiments using computers. It will offer theoretical background on the rationale behind experimental designs, as well as in-depth knowledge of experimental designs that are widely used today in psychological research. In addition, students will be taught the basic principles of programming and they will learn how to prepare experiments with the software that is commonly used today to collect empirical data in various psychology areas. Through individual assignments and a final project, students are expected to acquire experience in all phases of conducting research using computers.

#### PSY 714 Psychological Interventions in the Schools II

The course will focus on contemporary, empirically validated treatments for children and families and for classroom-based interventions in collaboration with the teacher. Interventions will include psycho-educational approaches, counseling, cognitive-behavioral and other scientifically based methods, with emphasis on their specific application in the school context.

#### **PSY 715 Language Development and Language Disorders**

Human language is a dynamic and complex function. The purpose of this advanced course is to discuss the theoretical and scientific bases for language acquisition and development, and the language disorders caused by developmental, organic, and neurological etiologies. The course will cover the spectrum of ages beginning with infancy and will conclude with the aging process. Disorders like aphasia, specific language impairment, language learning disabilities, as well as language impairments resulting from brain injuries and dementia and the relationship between language, cognition, and other psychological functions will be presented. Assessment techniques and intervention strategies based on contemporary theoretical, research, and clinical models will be included.

#### **PSY 722 Cross-Cultural Issues in Psychology**

A review of contemporary theory and research on social, cognitive and emotional development in children belonging to minority groups. Application to the current situation in Cyprus, with emphasis on the potential problems facing students and families residing in Cyprus due to economic or political immigration etc. The course will also discuss other minority groups which often become victims of social discrimination.

#### **PSY 730 Neuropsychological Assessment**

Clinical neuropsychology focuses on the interaction between brain functioning and human behavior. The purpose of this course is to discuss neuropsychological assessment and to help the student differentiate between functional versus organic disorders. In addition, the impact of individual differences relating to intelligence, quality of education, and issues pertaining to test sensitivity and specificity will be integrated into the lectures. Neuropathologies such as Alzheimer's disease, traumatic brain injury, cerebral vascular accidents, neoplastic lesions and neuropsychiatric disorders will be discussed as they pertain to dementia, aphasia, apraxia, agnosia, amnesia, and personality disorders. The course will discuss the effects of neuropathology on neuropsychological function and will examine current clinical assessment measures used to evaluate memory, attentionconcentration, language, perception, visual-spatial skills, verbal learning, and psychosocial functioning. Course prerequisites: PSY 200, PSY 706.

#### PSY 749 Qualitative research methods in Psychology

This course will introduce and familiarize students with qualitative research methods in psychology through a theoretical review and empirical applications. The course will involve the study of qualitative research projects in the areas of social, developmental, educational, cognitive and clinical psychology. The course will include study of: 1) the epistemological principles of qualitative and quantitative methodology; 2) principles and application of methods of data collection; 3) analytical theoretical models; 4) organization, management and class presentation of an original small research project.

### MASTER DEGREE IN COGNITIVE EDUCATIONAL PSYCHOLOGY

### Introduction

The Master's Programme in Cognitive and Educational Psychology aims to prepare students to undertake productive roles in research, teaching and applied work in the fields of Cognitive and Educational Psychology. The Programme offers students a comprehensive understanding of the concepts, methods and theories related to the aforementioned cognitive areas. Candidates may hold a bachelor's degree in psychology or a related field and are interested in increasing their knowledge of cognitive and educational methodologies. The master's programme offers specialized courses in teaching and learning, cognitive systems and development, general and specialized cognitive abilities and their measuring methods, biology of learning and cognitive abilities and advanced research methodology. The programme does not lead to a professional title degree in Psychology. Instead, it leads to the expansion of knowledge in two main areas of Psychology via in-depth study of the relationships between individual differences and learning environment, individual differences and knowledge transformation. This programme of study increases the graduate's readiness to understand the role and impact of contemporary educational and cognitive psychology in the dynamic and continuously evolving school and professional environments.

#### **Aim of the Programme**

- To offer comprehensive knowledge in specialized issues relevant to educational and cognitive psychology, emphasizing in-depth theoretical knowledge and application
- To increase the understanding and implementation of quantitative and qualitative methods pertaining to cognitive and educational psychology
- To help students develop their critical skills and improve their ability to comprehend and implement key concepts of the two cognitive areas
- To provide students with opportunities to participate in current research programmes and develop their basic research skills
- To provide the knowledge and skills that are required to pursue a doctoral programme, a research career, or a professional career
- To examine variables/factors contributing to the learning process, and to learn how to recognize and cope with learning difficulties exhibited by some children and adolescents
- To study cognitive development from the perspective of individual differences in basic and higher cognitive functions

#### **Fields of Research**

Spatial ability, memory and attention, intelligence, measurement of general cognitive capacity, and cognitive abilities, developmental learning disorders, pediatric and adult neuropsychology, learning and school environment, learning and cognition, knowledge acquisition and conceptual change, textual comprehension and learning, thought disorders and reasoning ability, creativity as a cognitive phenomenon.

### **Laboratory Equipment**

The Department of Psychology has three fully equipped research laboratories dedicated to Cognitive and Educational research. These are: the Experimental Psychology laboratory, the Psychophysiology laboratory and the Neurocognitive Research laboratory.

### **Programme Description**

The programme consists of 120 Credit Units (ECTS). The first 75 ECTS are distributed in courses, according to the student's interest area (Cognitive or Educational Psychology), and the 45 ECTS remaining are allocated for the required Thesis research. The Thesis is to be completed in two or three semesters (PSY 742 Master Thesis I (15 ECTS), PSY 743 Master Thesis IIA (15 ECTS) and PSY 744 Master Thesis IIB (30 ECTS). The programme allows students to move on to doctoral level studies. However, candidates who seek admission to the doctoral programmes must follow the standard application and interview process.

## **Structure of the Programme**

	ECTS
Required Courses	67.5
PSY 604 Multivariate Statistics for the Behavioral Scien	ces 7.5
PSY 620 Learning and Cognition	7.5
PSY 712 Cognitive Science	7.5
Thesis	52.5
PSY 742 Master Thesis I	15
PSY 743 Master Thesis IIA	15
PSY 744 Master Thesis IIB	15
Elective Courses	52.5

Students will select 7 courses (a total of 52.5 ECTS) from the list below. A course from another department or from another graduate programme in the Psychology Department may also be considered as an elective course as long as the student's supervisor approves of the substitution.

#### **Cognitive Psychology**

PSY 607 Memory and Executive Functions	7.5
PSY 608 Attention and Perception	7.5
PSY 616 Mental Representations	7.5
PSY 706 Neurophysiology	7.5
PSY 713 Experimental Psychology	7.5
PSY 715 Language Development and Language Disorders	7.5

#### Educational Psychology

PSY 601 Ethical and Professional Topics	
in Educational Psychology	7.5
PSY 605 Psychometrics	7.5
PSY 609 Developmental Learning Disabilities	7.5
PSY 610 Psychology of Education	7.5
PSY 619 Intelligence: Development and Evaluation	7.5
PSY 701 Psychology of Instruction	7.5
General Courses	
PSY 602 Graduate Seminar: Advanced Issues in Psychology	7.5
PSY 625 Graduate Research Study	7.5
PSY 626 Graduate Research Study	7.5
PSY 626 Graduate Research Study PSY 627 Graduate Research Study	7.5 7.5
PSY 626 Graduate Research Study PSY 627 Graduate Research Study PSY 689 Independent Study	7.5 7.5 7.5
PSY 626 Graduate Research Study PSY 627 Graduate Research Study PSY 689 Independent Study PSY 749 Qualitate Research Methods in Psychology	7.5 7.5 7.5 7.5
PSY 626 Graduate Research Study PSY 627 Graduate Research Study PSY 689 Independent Study PSY 749 Qualitate Research Methods in Psychology PSY 788 Advanced Research Methods II	7.5 7.5 7.5 7.5 7.5

## **Course Descriptions**

All courses are credited with 7.5 ECTS.

#### PSY 601 Ethical and Professional Topics in Educational Psychology

See course description above.

#### PSY 602 Graduate Seminar: Advanced Issues in Psychology

This is a seminar focused on in-depth examination of theory, application and research issues in Educational and Cognitive Psychology. The content will be adjusted according to the interests and specialisations of each lecturer. The goal is to have distinguished visitors or specialized scholars/scientists who will work with the Psychology Department to provide lectures for this seminar.

#### PSY 604 Multivariate Statistics for the Behavioural Sciences

See course description above.

#### **PSY 605 Psychometrics**

See course description above.

#### **PSY 607 Memory and Executive Functions**

The course focuses on various important issues in the field of human memory research. More specifically, traditional and contemporary theoretical perspectives will be analyzed, as well as the implementation of cognitive, social, neuroimaging and neuropsychological methods on memory research. Moreover, there will be discussions focused on how information is coded and recalled, the various types of memory and the use of different measuring tools for these issues. In addition, the issue of how memory loss develops, the biological changes accompanying it and therapy potential will be discussed. At a later stage, the focus will shift to the role of executive functions contributing to memory behaviors, with special reference to brain areas participating in higher cognitive functions, e.g. decision making and problem analysis.

#### **PSY 608 Attention and Perception**

The goal of this course is the thorough study of the nature of perceptual experience. The course will examine how the senses are used to gather information from the world and how the brain uses sensory signals to construct interpretations of what is out there. Although research on all senses will be discussed, vision will be examined more extensively. Research findings on topics such as the perception of color, depth, shape, and motion will be reviewed from the perspective of cognitive-experimental psychology and neuroscience.

#### **PSY 609 Developmental Learning Disabilities**

This course offers comprehensive information on developmental disorders. Developmental disorders reduce the person's functioning, since they affect cognitive, motor, adjusting and social skills. Some of these disorders partly affect the person's functioning, while others seriously affect social adjustment and functioning, in such a way that supportive equipment is required. During the course, there will be discussions on the diagnostic features of specific learning difficulties, mental disorders and autism, with emphasis on intervention strategies in school.

#### **PSY 610 Psychology of Education**

See course description above.

#### **PSY 616 Mental Representations**

Knowledge representation in an intelligent system, whether it be a brain or a computer, is a major concern in the Cognitive Sciences, as it pertains to the basic functional "units" of the system. Thus, any attempt to understand and analyze the way an intelligent system functions begins with the analysis and understanding of the way information is stored and represented in the system, and of the repercussions of a particular way of knowledge representation on the function and potentialities of the system. The problem of representation is primarily an epistemological problem, and as such it has both philosophical and psychological dimensions. But it is of major interest in Artificial Intelligence (AI) as well. Since the approach to the problem from the perspective of AI draws heavily on philosophical and psychological discussions about representations, and since an introduction to the problem in the context of AI cannot succeed without an expert's knowledge of philosophy and psychology, this approach will be adopted in analyzing the problem of knowledge representation. In this context the problem of knowledge representation amounts to the following: which programming language is the most appropriate given a specific knowledge domain that the intelligent system must master?

#### **PSY 619 Intelligence: Development and Evaluation**

See course description above.

#### **PSY 620 Learning and Cognition**

The content of this course will include selected="true"="true" topics in Cognitive Psychology and Cognitive Science with an emphasis on their implications for learning. Reference will be made to cognitive structures as well as processes such as knowledge acquisition, conceptual change, transfer, induction, analogical and deductive reasoning. The primary objective is to provide the solid theoretical basis that is necessary for research in this area. Coursework will involve reading, discussions, and extending previous research.

#### **PSY 701 Psychology of Instruction**

See course description above.

#### PSY 706 Neurophysiology

See course description above.

#### **PSY 712 Cognitive Science**

One of the most important scientific achievements of the past decades is the generation of a new research field, i.e., cognitive science. Cognitive science is better understood as a wide research field, utilizing data from psychology, philosophy, linguistics, artificial intelligence and neuroscience. These research areas, although partly differentiated in the methods they use, their theories and results, are united by the convergence of the questions they ask and by their common perspective of the brain as an information processing system. Researchers in these fields have realized that they posited many common questions about the human brain nature, and that they have developed complementary and potentially cooperative research methods. The term "cognitive" refers to the functions of perception and knowledge. Consequently, cognitive science is the science of the brain. Cognitive scientists study perception, thought, memory, language comprehension, learning and other cognitive phenomena. The research methods used are numerous, and they include adults and children observation, computer programming for executing complex problems, examination of the nature of meaning and giving meaning to languages, examination of the way a brain functions etc. The aim of this course is to familiarize students with this new admirable world.

#### PSY 713 Experimental Psychology

See course description above.

#### PSY 715 Language Development and Language Disorders

See course description above.

#### PSY 749 Qualitative Research Methods in Psychology

See course description above.

#### PSY 788 Advanced Research Methods II

Research Design, Review of Regression Analysis, Basic Functions of Structural Equation Modelling, Review of Exploratory Factor

Analysis, Confirmatory Factor Analysis (First-order CFA model, CFA models with Higher-Order factors), The Multitrait-Multimethod model, The Full Latent Variable model, Growth Modeling, Logistic Modelling, Multiple-Group Analyses (Testing for invariant factorial structure of a theoretical construct, Testing for invariant latent mean structure, Testing for Invariant Causal Structure), Item Response Theory, Rasch measurement models (The dichotomous Rasch Model, Partial Credit Model, Rating scale analysis), Multiple-Group IRT theory.

## MASTER IN SOCIAL DEVELOPMENTAL PSYCHOLOGY

#### Introduction

#### Why Social and Developmental Psychology?

Humans are social beings who change through the course of their development. Psychologists are interested in the study of human development and the interplay between nature and development. On the other hand, social processes typically studied in Social Psychology (intergroup relationships, interpersonal relationships, social influence, social representations, attributions of causality, cooperation and competition) have a developmental background, and consequently, to understand them requires the formulation of ontogenetic guestions. "The fact that both of these approaches have a common beginning and are inspired by common interests is impressive. Through their different traditions and methodologies, a deep similarity that ties them together is generated. It is as if Social Psychology and Developmental Psychology are interested in the same subject, Social Psychology for the space, through the outer environment and Developmental Psychology for the time, through the inside environment. Thus, they constitute two views of the same science, where one tries to resolve, on a group level, the same question the other one tries to resolve on an individual level" (Moscovici, 1990).

## The need for a master programme in Social and Developmental Psychology in Cyprus

Most contemporary Psychology Departments incorporate courses in Social and Developmental Psychology, because they are two of the four basic Psychology fields. Social and Developmental Psychology can make significant contributions in countries where socio-cultural needs and problems require social sciences for their solution. A typical example, and one that is close to the Cypriot reality, is the significant growth of Social and Developmental Psychology in North Ireland and Israel during the past decades, as these are divided communities with past and present national conflicts, and therefore they face issues such as national identity, increase and decrease of prejudice. Thus, the need for local research on social developmental psychology in Cyprus is immediate, especially concerning intergroup relationships and examination of the socio-psychological parameters of inter-community relationships through a developmental perspective.

Moreover, the recent economic growth and the emphasis on information access have created organizational and educational needs where applied Social and Developmental Psychology may contribute significantly. Lastly, the application of Social and Developmental Psychology in education is very important, since it focuses on the study of psychological changes (cognitive, emotional, social) taking place from birth to late life of a person. Through observation of the developing individual, psychologists acquire knowledge that allows them to describe changes in human thought and intelligence, personality, emotional world and many other areas of a person's inner world that are shaped through the educational system.

Social and Developmental Psychology are currently considered "bridges" to other areas of psychology. Other main areas (i.e., Cognitive and Clinical) derive significant theoretical and methodological examples from Social and Developmental Psychology via the understanding of dynamic processes that shape human development and social interaction.

#### **Structure and Aim of the Master Programme**

The programme consists of 120 Credit Units (ECTS). The first 75 ECTS are distributed in courses (required and elective), and the 45 ECTS remaining are allocated for the required thesis research. The Thesis is completed in two or three semesters (PSY 742 (15 ECTS), PSY 743 (15 ECTS), and PSY 744 (30 ECTS).

The goals of this programme are:

- To provide theoretical and methodological training for designing, conducting and analyzing socio-psychological and developmental research
- To facilitate the understanding of quantitative and qualitative methodological approaches
- To facilitate the connection of theoretical and empirical questions with social and developmental problems

Completion of the programme may lead to doctoral level studies in Social or/and Developmental Psychology. It may also lead to immediate job placements in fields where

graduates' gualifications are considered useful, e.g., in organizations working on social research and market research. However, candidates seeking admission to the doctoral programmes must follow the standard application and interview process.

### **Fields of Research**

Students in the programme have the opportunity to participate in the following research programmes:

- Social representations of national identity
- Social representations of gender
- · Greek-Cypriot and Turkish-Cypriot contact and trust development
- Inter-group relationships and teaching history
- · Social construction of knowledge and cooperative learnina
- Social representations of HIV/AIDS and development of prevention programmes
- Ecological consciousness and behaviour
- Driving behaviour and development of driving violence prevention programs
- Consumer behaviour and consumer attitudes
- The psychology of minority social influence
- · Parental involvement and child development
- School aggression in preschool and school-age children
- Parent, child, teacher and attribution theories
- Parental style and developmental difficulties in childhood and adolescence
- Adolescence, antisocial behaviour, and substance use
- · Developmental psychopathology and developmental disorders
- Emotional divergence and relevant disorders
- A systemic approach to problem resolution in school

#### Laboratory Equipment

The Laboratory of Social and Developmental Psychology (LSDP) is already operational in anticipation of the needs of the master's programme. The laboratory will support the following types of research:

 The analysis of mechanisms of social knowledge development and change through various analysis levels of socio-psychological reality (intra-individual, inter-individual, intergroup and representational ideological level)

- The study of small group dynamics, cooperation and competition in educational settings
- The study of social representation microgenesis, ontogenesis and sociogenesis
- The study of learning and cognitive development as a socio-psychological procedure
- The study of parents children relationships and interactions
- The study of pre-social and antisocial behaviour between children
- The study of individual differences using neuro-psychological and developmental research methodology
- The analysis of mechanisms involved in typical and nontypical development

## **Programme Description**

ECTS

15

#### **Required Courses (75 ECTS in total)**

#### PSY 604 Multivariate Statistics for the Behavioral Sciences 7.5 PSY 630 Contemporary Theories of Human Development 7.5 PSY 637 Social Development and Social Settings 7.5 PSY 640 Social Influence and Social Representations 7.5 **Master Thesis** PSY 742 Master Thesis I 15 15

## PSY 743 Master Thesis IIA PSY 744 Master Thesis IIB

#### Elective Courses (6 courses, 45 ECTS in total)

PSY 602 Graduate Seminar: Advanced Issues in Psychology 7.5 PSY 610 Psychology of Education 7.5 PSY 619 Intelligence: Development and Evaluation 7.5 PSY 625 Graduate Research Study 7.5 PSY 631 Developmental Psychopathology 7.5 PSY 632 Adolescence 7.5 PSY 677 Human Aggressiveness and Antisocial Behavior 7.5 PSY 689 Independent Study 7.5 PSY 707 Family and Child Development 7.5 PSY 715 Language Development and Language Disorders 7.5 PSY 722 Cross-Cultural Psychology 7.5 PSY 741 Intergroup Relationships in Divided Communities 7.5 PSY 746 Social Psychology of Education 7.5 PSY 749 Qualitative Research Methods in Psychology 7.5 PSY 788 Advanced Research Methods II 7.5

An appropriate course of another department or another graduate programme in the Psychology Department may also be considered as an elective course as long as the student's supervisor approves the substitution.

## **Course Descriptions**

All courses are credited with 7.5 ECTS.

#### PSY 602 Graduate Seminar: Advanced Issues in Psychology

See course description above.

#### **PSY 604 Multivariate Statistics for the Behavioural Sciences**

See course description above.

#### **PSY 610 Psychology of Education**

See course description above.

#### PSY 619 Intelligence: Development and Evaluation

See course description above.

#### PSY 630 Contemporary Theories of Human Development

The main theories of human development, from conception to the end of life, will be critically presented and discussed. There will also be discussions concerning intra-personal and inter-personal influences on biological, cognitive, emotional and social development.

#### PSY 631 Developmental Psychopathology

This course will analyze two of the most important approaches in Developmental Psychology: Developmental Psychopathology and Developmental Neuropsychology. These two contemporary approaches, which aim to understand typical and nontypical development, suggest that development derives from a dynamic interaction of genetic, neuropsychological, social, cognitive, emotional and cultural influences. There will be discussions on the etiology of developmental problems and disorders, as well as their comorbidity. Moreover, the interaction between biological and social factors on psychopathological development will be discussed. Lastly, there will be a discussion about psychological resistibility and related findings that connect various protective factors to prevention and intervention.

#### **PSY 632 Adolescence**

This course will cover the main theories and research on cognitive, physiological, socio-emotional, moral, and personality development during adolescence. Furthermore, we will also discuss the various problems faced by adolescents, emphasising the factors contributing to the development of problematic behaviour, including emotional, social and academic problems. The importance of discussing various psychological and other problems faced by adolescents lies in the fact that they are connected to extreme behaviors, such as suicide, criminal and aggressive behaviour.

#### **PSY 637 Social Development and Social Settings**

This course will introduce students to classic and contemporary theories of human development, which consider development to be a socio-psychological process. There will be a historical review of theories that form the theoretical bases of the contemporary socio-genetic approach to human development, e.g., the classic theories of Mead, Baldwin, Piaget and Vygotsky. There will be also in-depth discussions about recent meta-Piagetian theories of the Geneva social school, and about meta-Vygotskian theories such as those of Bruner, Rogoff, Wertsch and Valsiner.

#### **PSY 640 Social Influence and Social Representations**

This course will offer in-depth discussions concerning two of the most significant areas of Social Psychology: social influence and social representations. There will be discussions about the functional and the genetic model of social influence, as well as about classic and contemporary advancements in the areas of social influence and social representations. Moreover, the development of social representations of gender and national identity will be discussed. The applications of social influence and social representations, health psychology, advertising, communication and trade will also be discussed.

#### **PSY 677 Human Aggressiveness and Antisocial Behaviour**

This course will examine the phenomenon of aggressiveness, by presenting the various theories that attempt to explain it, as well as the empirical research that aims to locate its parameters. Terms such as pre-active and counteractive aggressiveness, emotional toughness and its relationship to psychopathology; family as a trigger for the development of aggressive behaviour and the development of an aggressive personality will be analyzed. There will be special reference to bullying and profiles of children involved in it (bullies, victims, aggressive victims). We will also discuss about issues related to antisocial behaviour in general, such as substance abuse, youth violation of rules and youth criminality.

#### **PSY 707 Family and Child Development**

This course examines how structural and functional features of the family microsystem influence its members, especially the young, still developing members. The main theories of family development and function will be presented, with emphasis on the systemic approach. There will also be presentations and discussions on recent research targeting the interaction of intra-personal and interpersonal variables on the child's cognitive, psycho-social and personality development.

#### PSY 715 Language Development and Language Disorders

See course description above.

#### PSY 722 Cross-cultural Psychology

See course description above.

#### PSY 741 Intergroup Relationships in Divided Communities

This course will offer in-depth discussions on classic and contemporary theories of intergroup relationships. The concepts of stereotypes, prejudices and discrimination will be discussed. We will focus on the theories of Frustration-Aggression, Authoritarian Personality, Realistic Conflict, Social Identity, Contact Hypothesis, as well as recent evolutions of these theories, such as the theory of Orientation towards Social Reign, the Theory of Threats, and theories combining the Contact Theory with the Social Identity Theory. We will also discuss empirical findings and applications of these theories on the mixed education institution and on the resolution of intergroup conflicts in North Ireland, South Africa, Israel, Palestine and other places.

#### **PSY 742 Social Psychology of Education**

This course will discuss the socio-psychological bases of crosscultural education. Students will learn the main theories of generation and decrease of prejudice, stereotypes and discrimination, as well as their application in educational settings. We will discuss the phenomenon of immigration from both the minority and the majority perspective, as well as the phenomenon of national conflicts, and the role that the educational system may play in peace consolidation, through the application of the discussed theories.

#### PSY 749 Qualitative Research Methods in Psychology

See course description above.

#### PSY 788 Advanced Level Research Methods

See course description above.

## PH.D. IN CLINICAL PSYCHOLOGY

#### **Aim of the Programme**

The doctoral programme leads to a Doctor of Philosophy (Ph.D.) Degree in Clinical Psychology. The programme consists of three components: a) academic coursework, b) clinical practica, and c) the completion of a doctoral dissertation. The duration of the programme is four years, totaling 320 ECTS. Graduates of the program will be able to pursue careers in research and academia and will meet the criteria for enrollment in the registry of professional psychologists according to Cyprus Law.

#### **Number of Entrants and Entry Process**

The Department admits about seven doctoral students each year. The positions are announced at least six months before the beginning of each academic year according to the formal procedures of the Student Services. Applications are examined by the Postgraduate Programme Committee of the Department, which submits a proposal to the Departmental Board. The decisions of the Department are implemented only after approval by the Postgraduate Committee of the University.

#### **Entry Criteria**

- A bachelor's degree in Psychology and a master degree in Psychology from accredited universities. It is preferred that the master degree is in an applied field of psychology.
- Student performance as indicated on the student's university transcripts.
- Minimum of three letters of recommendation (see Departmental Recommendation Form); at least two of the letters should be from former professors.
- Distinctions and special awards.
- Research participation, publications and scientific publications.
- Personal interview.

Each doctoral student will be assigned an academic advisor who is a faculty member in the Department and who will supervise the student during his/her studies and dissertation process. The Department requires that the candidate secures the commitment of a faculty member who agrees to mentor him/her during the doctoral studies, prior to the admission interview (which is conducted as part of the admission decision process).

### **Completion of the Ph.D. Programme**

The following are required for the Ph.D. degree:

- 1. Successful completion of 320 ECTS, including the 75 ECTS described above from academic courses and seminars
- 2. Successful performance on the Comprehensive Examination according to the internal regulations of the Department and the University
- 3. Successful completion of the Clinical Practicum Internships totalling 1500 supervised clinical hours
- 4. Successful completion of the Clinical Knowledge and Skill Examination according to the internal regulations of the Department and the University
- 5. Submission and successful defence of a doctoral dissertation proposal
- 6. Completion and successful defence of a doctoral dissertation

## **Programme Description**

#### I. Academic Coursework

Students will complete eleven courses selected from the following four categories:

- 1. Research
- 2. Clinical Assessment
- 3. Clinical Intervention
- 4. Psychotherapy Seminars

Students may transfer up to three courses from their M.A. work, from categories 1, 2, & 3 (see above), provided that the course content was identical.

It is expected that students will have already learned the theoretical bases of Psychology (Cognitive, Biological, Developmental, Social and Research Methods), as well as basic counseling skills as part of their master programme. Therefore, these courses are not required as part of the doctoral program's total ECTS. If a student has not attended at least one course in each of the above areas during the Master programme, he/she must do so during doctoral studies (this is in addition to the requirements of the doctoral programme).

Ethical, Professional Development, Cross-cultural and Legislation issues will be integrated in the content of the clinical courses in order to provide a better understanding and connection of these issues pertaining to specific cases and disorders. The programme does not, therefore, include a separate course on these issues.

Students are required to pass a comprehensive examination during the 5th semester of their studies, after which they can begin their doctoral dissertation. The breakdown of the academic and dissertation courses are given below.

FCTS

	LCID
Research Courses	15
Two of the following:	
PSY 788 Advanced Research Methods II (Pre-requisite: PSY 604: Multivariate Statistics	
for the Behavioral Sciences)	7.5
PSY 789 Applied Data Analysis II	7.5
PSY 790 Doctoral Seminar: Dissertation and Research Programme Development	7.5
Clinical Assessment Courses	22.5
Three of the following:	
PSY 642 Child and Adolescent Psychopathology <b>or</b> PSY 717 Adult Psychopathology	7.5 7.5
PSY 705 Diagnostic Intellectual Assessment of Children	
and Adolescents <b>or</b>	7.5
PSY 730 Neuropsychological Assessment	7.5
PSY 747 Diagnostic Assessment II (Personality, Emotion and Symptomatology)	7.5
Clinical Intervention Courses	15
Two of the following:	
PSY 708 Analysis and Modification Behavior	7.5
PSY 711 Psychopharmacology	7.5
PSY 716 Basic Clinical Skills (mandatory)	7.5
PSY 733 Theories and Systems in Psychotherapy	7.5
PSY 748 Neuropsychological Rehabilitation	7.5
Specific Psychotherapy Seminars	22.5
Three of the following:	
PSY 714 Psychological Interventions in the Schools II	7.5
PSY 720 Advanced Seminar in Psychotherapy with	7 5
Couples and Families	7.5
PSY 721 Seminar in Group Psychotherapy	7.5
(mandatory)	7.5
PSY 724 Seminar in System Theory and Interventions Seminar	7.5
PSY 725 Seminar in Brief Psychotherapy Seminar	7.5
PSY 726 Specialized Seminar II: Clinical Geropsychology	7.5
PSY 727 Specialized Seminar III: Clinical Forensic Psycholog	gy 7.5

PSY 728 Advanced Seminar IV: Psychological Interventions in Health Settings	7.5
PSY 729 Advanced Seminar V: Severe Psychopathology, Diagnosis and Treatment	7.5
Final Comprehensive Exam	15
PSY 777 Preparation for Final Exam (optional)	1
PSY 800 Final Examination	15
Doctoral Dissertation	180
PSY 869 Research Level IA	15
PSY 870 Research Level IB	15
PSY 871 Research Level IIA	15
PSY 872 Research Level IIB	15
PSY 873 Research Level III	30
PSY 874 Research Level IV	30
PSY 875 Writing Level IA	15
PSY 876 Writing Level IB	15
PSY 877 Writing Level IIA	15
PSY 878 Writing Level IIB	15
PSY 879 Writing Level III	1
PSY 880 Writing Level IV	1
PSY 881 Writing Level V	1
PSY 882 Writing Level VI	1
PSY 883 Writing Level VII	1
PSY 884 Writing Level VIII	1
PSY 885 Writing Level IX	1
PSY 886 Writing Level X	1
Clinical Practicum Seminars	42.5
PSY 734 Clinical Practicum Seminar I	10
PSY 735 Clinical Practicum Seminar II	10
PSY 736 Clinical Practicum Seminar III	11
PSY 738 Clinical Practicum Seminar IV	11.5
PSY 739 Clinical Practicum Seminar V (optional)	7.5

Note: for the eleventh course, the student selects a course from the clinical intervention or the specific psychotherapy seminars section.

#### **Study Terms and Conditions**

The student must maintain a Grade Point Average of seven out of ten or higher, otherwise he/she will be placed on academic probation. If a student's grade remains below seven for a second semester, the case is forwarded to the Departmental Board for review and possible dismissal.

### **II. Clinical Practicum**

All doctoral students are required to complete at least 1500 hours of clinical practicum, according to the current legislation and the standards set by the proposed European training model for Psychologists – EuroPsy. Students who have already completed some supervised clinical practicum (that will fulfill the criteria of the Department) during their master degree in Psychology, as well as students who already are licensed psychologists, may be credited with up to 900 hours of clinical practice.

The clinical practicum will be supervised both by our Department's faculty and by supervisors outside the Department, on the basis of quality standards set by the scientific literature, international practice guidelines, and our faculty's knowledge and expertise.

#### PSY 737 Required final doctoral examination of clinical knowledge and skills (0 ECTS)

In order to graduate, doctoral students in our programme must pass a final exam on clinical knowledge and skills that will evaluate their readiness to practice independently as clinical psychologists.

Before taking the exam, students must have:

- 1) successfully completed their clinical portfolio
- 2) completed at least 1000 hours of supervised clinical practicum
- 3) fulfilled the clinical practicum aims stipulated the Department. The final exam will conducted individually in written form and will be scored by a two-member committee.

Should a student fail the final examination, he/she is suspended until such time that he/she retakes and passes the exam. The Department sets specific dates for the examination consistent with the length of the academic semesters. This allows students to take the examination at the same time that they complete the Clinical Practicum Seminar III. The Clinical Practicum Seminar III is scheduled according to the examination and/or the completion of the minimum 1000 hours of clinical practicum. This way students who fail the examination may resit it at a time compatible with the assessment of progress.

The examination evaluates students' clinical development and expertise in the management of clinical cases and, by extension, their ability to independently practice the profession of clinical psychology in all its contexts--ethical, legal, and professional. The examination will be evaluated in the form of Pass/Fail and the result will be validated by the Board. In case of failure, the Department may require the student to engage in further academic activities and/or additional supervised clinical practice, if necessary. In the event of a second failure, the student will not be allowed to continue her/his clinical training and, therefore, will be unable to complete the clinical, applied part of the programme.

## **III. Doctoral Dissertation**

The procedures for conducting the doctoral dissertation are presented and explained on the Department website. The student may begin the dissertation after the successful completion of the Comprehensive Examination. The dissertation is supervised by a faculty member of the Department.

## **Yearly Schedule**

	ECTS
First Year	
Fall Semester	
Research Course	7.5
Clinical Assessment Course	7.5
Clinical Intervention Courses	7.5
Clinical Intervention Courses (716) *	7.5
Total	30
Spring Semester	
Research Course	7.5
Clinical Assessment Course	7.5
Clinical Intervention Course	7.5
PSY 869	15
Total	37.5
Summer Semester	
PSY 870	15
Total	15
Second Year	
Fall Semester	
Specific Psychotherapy Seminar (PSYCH 723)* (5+2.5)	7.5
Specific Psychotherapy Seminar** (5+2.5)	7.5
PSY 734 Clinical Practicum Seminar I*	10
PSY 871	15
Total	40

#### **Spring Semester** Specific Psychotherapy Seminar 7.5 (5+2.5) Specific Psychotherapy Seminar \*\* 7.5 PSY 735 Clinical Practicum Seminar II \* 10 PSY 872 15 Total 40 Summer Semester PSY 800 Final Comprehensive Exam 15 Total 15 Third Year Fall Semester PSY 736 Clinical Practicum Seminar III \* 11 PSY 873 30 Total 41 **Spring Semester** PSY 738 Clinical Practicum Seminar IV \* 11.5 PSY 874 30 Total 41.5 **Fourth Year Fall Semester** PSY 875 15 PSY 876 15 Total 30 Spring Semester PSY 877 15 PSY 878 15 Total 30 **Total Mandatory Academic ECTS** 97.5 **Total Mandatory Clinical ECTS** 42.5 Total Mandatory Research ECTS 180 Note: (\*) Denotes a mandatory course; (\*\*) Denotes the possibility of choosing one elective for one of the two semesters.

## **Course Descriptions**

All courses are credited with 7.5 ECTS.

#### **PSY 642 Child and Adolescent Psychopathology**

See course description above

PSY 705 Diagnostic Intellectual Assessment of Children and Adolescents

See course description above

**PSY 708 Analysis and Modification of School Behavior** 

See course description above

#### **PSY 711 Psychopharmacology**

See course description above

#### PSY 714 Psychological Interventions in the School II

## See course description above

### PSY 716 Basic Clinical Skills

Foundation course that focuses on the clinical thinking and the clinical methods necessary for assessment and psychotherapy. The course reviews the theory and research that will enable students to develop clinical skills needed for interviewing, managing difficult and sensitive topics and managing clients' emotional reactions; it will also teach them insight, self-management and how to define the problem. This course covers the issues and problems involved in clinical practice and presents the process of clinical practice. Specific clinical skills will be taught, discussed and practiced throughout the semester.

#### **PSY 717 Adult Psychopathology**

This course will review the most common disorders of adulthood, with emphasis on diagnosis and the clinical picture; the developmental process; possible etiologies; the role of biological, hereditary, environmental and other factors in the development and maintenance of the problem. Scientifically based treatments for these disorders will be discussed. Also discussed are the clinical diagnostic classifications and the criteria that separate abnormal from normal behavior.

#### PSY 720 Advanced Seminar in Psychotherapy with Couples and Families

This seminar focuses on the particularities of working with families and couples. Students will become familiar with behavioral, cognitive and systemic approaches and techniques to assess and treat these groups. Students will learn to anticipate and deal with the problems that arise from the associations between the different family members, and will be taught the role of the therapist in this system. Relevant clinical skills and related ethical issues will be discussed and practiced through simulations and clinical cases.

#### **PSY 721 Seminar in Group Psychotherapy**

The purpose of this course is to provide an introduction to group psychotherapy. Several theoretical approaches to the development of a therapy group will be considered (e.g., Behavioral, Rational-Emotive, Person-Centered, Psychoanalytic). Specifically, students will acquire knowledge pertaining to issues of forming, developing, and leading different groups. Students will acquire the skills necessary for group leadership through experiential exercises and/or group experiences.

#### **PSY 723 Seminar on Cognitive Behavioral Therapy**

The purpose of this course is to introduce students to cognitivebehavioral theory, the related research, and psychotherapy practice. It will focus on how this theoretical approach is applied to the treatment of various psychiatric and psychological difficulties and disorders. It will also address: (a) issues arising as treatment begins, such as assessment, decision-making, conceptualization, and treatment planning; (b) treatment techniques commonly used in CBT and the theories underlying them; (c) issues relating to the practice of CBT; (d) the efficacy of the approach; and (e) the benefits and limitations of identifying and using empirically supported treatment programs. The course will also introduce the "third wave" behavior therapies such as dialectical behavior therapy (DBT) and acceptance and commitment therapy (ACT). Another objective of the course is to encourage students to think critically about their clinical work, and to do the same for the research literature that is related to this work. At the completion of the course, students should be competent in understanding, explaining, critically evaluating, teaching, and applying the philosophy. They should also be aware of the advantages and limitations, the research and the techniques of CBT, as well as the empirical approach to therapy. This course will consist of a mix of lectures, class discussion, videos, demonstrations, role plays, and student presentations.

#### **PSY 724 System Theory and Interventions Seminar**

Review of the various system models as they apply to psychological intervention. Emphasis will be placed on the family system, the couple system, groups, and organizational systems. Systemic thinking in relation to individual mental health problems, interpersonal difficulties, and intergroup conflict will be developed. Emphasis will be placed on developing students' ability to consider contextual factors (e.g., cultural, social, familial, work, school).

#### **PSY 725 Brief Psychotherapy Seminar**

Review of the different brief therapy models. Definition of the clinical problem and solution focused interventions for individual mental health problems and couple distress. Development of skills for brief psychotherapy treatment will be achieved through structured discussions, experiential learning, case studies, and role playing. This course is expected to further develop the students' knowledge and skills in basic psychotherapy.

#### PSY 726 Specialized Seminar II: Clinical Geropsychology

This course examines the psychological and health aspects of ageing. It covers normal/healthy ageing, and in addition, it presents research, assessment and intervention strategies regarding typical problems of aging that arise in clinical practice. Information is presented within a framework that emphasises the interplay among biological, psychological and social factors and the way these impact the aging person's functioning. The role of the family will be explored in treatment programmes that plan for problems likely to be faced in later stages of life. Clinical skills will be developed throughout the semester via taking on geropsychological cases at practicum sites as well as through guided discussion, case study, and video case review.

#### PSY 727 Advanced Seminar III: Clinical Forensic Psychology

This seminar will train students to apply their clinical knowledge and skills in forensic settings. The course will first address the theories pertaining to aggression, criminality and antisocial behavior. The main focus, however, will be in working with these challenging populations; specifically focusing on the role of the Clinical Psychologist as an expert witness, and on the psychologist's assessment of suspects, witnesses and victims through clinical interviews, cognitive and personality tests and other methods. Students will also study intervention methods with perpetrators and victims of violence through simulations and studies of clinical cases. Ethical issues that arise in the forensic context will also be discussed.

#### **PSY 728 Psychological Interventions in Health Settings**

Health Psychology is the interdisciplinary field concerned with the development and integration of behavioral, psychosocial, and biomedical science knowledge, theory, and techniques relevant to the understanding of health and illness, and the application of this knowledge and these techniques to prevention, diagnosis, treatment, and rehabilitation. Behavioral medicine is the clinical or application branch of health psychology. Thus, behavioral medicine is a sub-specialty of both health psychology and clinical psychology, or the field where clinical psychology and health psychology merge. This class will cover a range of topics that are relevant to health psychology and behavioral medicine. In particular, it will examine basic psychological processes that influence health and illness including, but not limited to, perceived control, stress, behavioral conditioning, factors that influence behavioral change, self-efficacy and social support. It will also examine specific behaviors, illnesses, and physical conditions that are part of the behavioral medicine domain such as obesity, smoking, cancer, HIV, and hypertension. This course will focus on the interventions used in the field of clinical health psychology. Specific emphasis is placed on learning the skills associated with delivering cognitive behavioral psychotherapy in the health care setting. These interventions will focus on both behavioral health (i.e., psychiatric) outcomes as well as health-related behaviors such as medication adherence. In this course students will spend significant time learning the details of these interventions through observation of role-play and videotaped interventions, and practicing specific interventions through clinical case studies and role-play exercises.

#### PSY 729 Specialized Seminar V: Severe Psychopathology, Diagnosis and Treatment

Review of theory, research, and intervention for psychotic and personality disorders. Emphasis will mainly be on adult severe psychopathology. Understanding of the development and maintenance of the psychopathology will be explored through theory and research. A bio-psychosocial framework will be applied to the understanding of severe psychopathology. Assessment and intervention skills will be developed in the areas of suicidal and homicidal ideation. Empirically validated interventions and the importance of multidisciplinary treatment for severe psychopathology will be introduced. Methods used to develop the students' clinical skills include simultaneous therapy with clients with severe psychopathology at practicum sites, guided discussion, demonstration, and experiential learning that emphasizes skills training and practice.

#### **PSY 730 Neuropsychological Assessment**

Clinical neuropsychology focuses on the interaction between brain functioning and human behavior. The purpose of this course is to discuss neuropsychological assessment and to help the student differentiate between functional versus organic disorders. In addition, the impact of individual differences relating to intelligence, quality of education, and issues pertaining to test sensitivity and specificity will be integrated into the lectures. Neuropathologies such as Alzheimer's disease, traumatic brain injury, cerebral vascular accidents, neoplastic lesions and neuropsychiatric disorders will be discussed as they pertain to dementia, aphasia, apraxias, agnosias, amnesias, and personality disorders. The course will discuss the effects of neuropathology on neuropsychological function and will implement current clinical and valid assessment measures used to measure memory, attention-concentration, language, perception, visual-spatial skills, verbal learning, and psychosocial functioning. Course prerequisites: PSY 200, PSY 706.

#### PSY 733 Theories and Systems in Psychotherapy (compulsory)

This course serves as an introduction to the various theoretical orientations that inform psychotherapy. Psychodynamic, Cognitive, Behavioral and other models will be discussed. Discussions will focus on how each model conceptualizes the etiology of psychopathology, how each model proceeds to diagnosis and the basic methods each model uses in treatment. Through this introduction students will have access to a wide range of therapy tools that they can utilize in their clinical practice. They will also be able to select the theoretical approach that best suits them and which they can study in greater depth during their clinical internship.

PSY 734 Clinical Practicum Seminar I (10 ECTS) PSY 735 Clinical Practicum Seminar II (10 ECTS) PSY 736 Clinical Practicum Seminar III (11 ECTS) PSY 738 Clinical Practicum Seminar IV (11.5 ECTS)

#### PSY 739 Clinical Practicum Seminar V (7.5 ECTS) – OPTIONAL

Various clinical topics are covered. The seminars will be devoted to discussion of clinical cases assigned to students through practicum sites. Professional issues in clinical psychology and students' professional development will be discussed. Enrollment is required for 4 semesters during practicum training. Students are supervised by licensed psychologists in an applied setting and receive ongoing instruction from clinical faculty.

#### PSY 745 Diagnostic Assessment II (Personality, Emotion and Symptomatology)

This course aims to educate students in the methods used to assess personality and in the use of diagnostic tests and symptomspecific instruments. After a general introduction to the various methods used in personality assessment, emphasis will be placed on the administration and interpretation of widely used tests like the MMPI and NEO-FFI. Students will also acquire experience in the use of structured and semi-structured clinical interviews for purposes of diagnosis and in the use of symptomspecific tests to identify dysfunction in emotional and behavioral processes. PSY 755 is a prerequisite.

#### **PSY 748 Neuropsychological Rehabilitation**

This course is sequential to the course on neuropsychological assessment (Psy 730). Students will learn how to interpret assessment findings in order to develop a neuropsychological profile and therapeutic goals for neuropsychological rehabilitation. The course will discuss prominent theories of neuropsychological rehabilitation and evidence-based therapeutic methods and treatment techniques for the rehabilitation of neuropsychological disorders including memory, attention-concentration, perception, organization and categorization, language, and psychosocial disorders. Course prerequisites: PSY 730, PSY 706.

#### **PSY 788 Advanced Research Methods**

See course description above

#### **PSY 789 Applied Data Analysis**

The course is designed to provide an integrated, in-depth approach to data analysis in psychological science research. An emphasis is placed on applied data analysis and accurate conceptualisation, rather than statistical theory. Readings and in-class discussions will focus on theoretical and practical issues involved in the conception, implementation, and evaluation of empirical research in psychology. The course revolves around two themes, research methodology and applied statistics.

Course topics include experimentation, quasi-experimentation, participant observation, case studies, surveys, interviews and clinical trial implementation. These methodologies are presented and discussed in parallel with related statistical techniques so that students will be able to resolve questions related to study design, and also apply and evaluate different kinds of psychological investigations.

#### PSY 790 Doctoral Seminar: (Dissertation development and proposal development for research programs)

The aim of this course is to help students develop their dissertation and learn how to prepare a research proposal suitable for funding. The course will have a seminar format where students can express and develop ideas related to their theses, as well as describe their problems and ask questions in order to receive feedback from the instructor and from the rest of the participants in the group.

## PH.D. IN PSYCHOLOGY

#### **Structure of the Programme**

The doctoral programme leads to a Doctor of Philosophy (Ph.D.) Degree. Applications are accepted from students who have already earned a Master's Degree in Psychology or related field. The doctoral degree consists of a minimum of 240 ECTS, which include the completion of six academic courses corresponding to 45 ECTS (7.5 ECTS each). Students are required to pass a comprehensive examination during the 5th semester of their studies, after which they may begin their doctoral dissertation. The breakdown of the academic and dissertation courses are given below.

ECTO

I. Academic Coursework	
Required Courses	15
(Two of the following courses)	
PSY 788 Advanced Research Methods pre-requisite: PSY 604 Multivariate Statistics for the Behavioral Sciences) <b>or</b>	
PSY 789 Applied Data Analysis II	7.5
PSY 790 Doctoral Seminar: Dissertation and Research Programme Development	7.5
Elective Courses	30
(Four of the following courses)	
PSY 706 Neurophysiology	7.5
PSY 707 Family and Child Development	7.5
PSY 710 Advanced Seminar in Psychology	7.5
PSY 711 Psychopharmacology	7.5
PSY 712 Cognitive Science	7.5
PSY 713 Experimental Psychology	7.5
PSY 715 Language Development and Language	
Disorders	7.5
PSY 718 Psychology of Reading	7.5
PSY 719 Topics in Neuroscience	7.5
PSY 722 Cross-Cultural Issues in Psychology	7.5
PSY 730 Neuropsychological Assessment	7.5
II. Comprehensive Examination and Doctoral Dissertation	

PSY 777 Preparation for Final Exam (optional)	1
PSY 800 Final Examination	15

#### **Doctoral Dissertation (180 ECTS)**

The procedures for conducting the doctoral dissertation are presented and explained on the Department website. The dissertation may not be started until the successful completion of the Comprehensive Examination and it is supervised by a Department faculty member.

	ECTS
PSY 869 Research Level IA	15
PSY 870 Research Level IB	15
PSY 871 Research Level IIA	15
PSY 872 Research Level IIB	15
PSY 873 Research Level III	30
PSY 874 Research Level IV	30

PSY 875 Writing Level IA	15
PSY 876 Writing Level IB	15
PSY 877 Writing Level IIA	15
PSY 878 Writing Level IIB	15
PSY 879 Writing Level III	1
PSY 880 Writing Level IV	1
PSY 881 Writing Level V	1
PSY 882 Writing Level VI	1
PSY 883 Writing Level VII	1
PSY 884 Writing Level VIII	1
PSY 885 Writing Level IX	1
PSY 886 Writing Level X	1
Six Academic Courses X 7.5 ECTS	45
Comprehensive Examination	15
Research Levels	120
Dissertation Writing Levels	60
TOTAL	240

## **Number of Entrants and Entry Process**

The Department admits about five doctoral students each year. The positions are announced at least six months before the beginning of each academic year according to the formal procedures of the Student Services. Applications are examined by the Postgraduate Programme Committee of the Department, which submits a proposal to the Departmental Board. The decisions of the Department are implemented only after approval by the Postgraduate Committee of the University.

Each doctoral student will be assigned an academic advisor who is a faculty member in the Department and who will supervise the student during his/her studies and dissertation process. The Department requires that the candidate secure the commitment of a faculty member who agrees to mentor him/her during the doctoral studies, prior to the admission interview (which is conducted as part of the admission decision process).

## **Entry Criteria**

- Master degree from an accredited institution.
- Student performance as indicated on university transcripts. Special weight is given to grades in related courses.
- Minimum of three letters of recommendation (see Departmental Recommendation Form); at least 2 of the letters should be from former professors.
- Distinctions and special awards.

- Research participation, publications and scientific publications.
- Personal interview.

## **Completion of the Ph.D. Programme**

The following are required for the Ph.D. degree:

- 1. Successful completion of 240 ECTS including the 45 ECTS of academic coursework described above.
- 2. Successful performance on the Comprehensive Examination according to the internal regulations of the Department and the University.
- 3. Submission and successful defence of a doctoral dissertation proposal.
- 4. Completion and successful defence of a doctoral dissertation.

## **Study Terms and Conditions**

The student must maintain a Grade Point Average of seven out of ten or higher, otherwise he/she will be placed on academic probation. If a student's grade remains below seven for a second semester, the case is forwarded to the Departmental Board for review and possible dismissal.

## **Course Descriptions**

All courses are credited with 7.5 ECTS.

#### **PSY 706 Neurophysiology**

See course description above.

#### **PSY 707 Family and Child Development**

See course description above.

#### PSY 710 Advanced Seminar in Psychology

This course allows an in-depth review and analysis of research and issues on specific advanced topics in the areas of cognitive, developmental, and educational psychology. Students will also be given the opportunity to pursue a research topic in greater depth

#### PSY 711 Psychopharmacology

See course description above.

#### **PSY 712 Cognitive Science**

See course description above.

#### **PSY 713 Experimental Psychology**

See course description above.

#### PSY 715 Language Development and Language Disorders

See course description above.

#### **PSY 718 Psychology of Reading**

Overview of psychological research investigating the perceptual and cognitive processes that occur during reading. Emphasis is placed on the mental representations that support reading (general conceptual knowledge, linguistic knowledge and skill) and that result from the comprehension of text (referential representation, text model). In addition, topics such as reading ability and its measurement and learning from text, are also examined.

Prerequisites for the master programme: Cognitive Science, Learning and Cognition.

#### **PSY 719 Topics in Neuroscience**

An important problem in Cognitive Science refers to the way knowledge is represented in the brain and mind. The study of this problem requires previous knowledge of the basic methods of knowledge representation, such as propositional representation, semantic nets, frames, the distributed representations of neural networks, etc. The comprehension of these methods, as well as their critical appraisal, require knowledge of both symbolic logic and basic connectionist theory. This course aims to introduce the postgraduate student to the fundamentals of symbolic logic and connectionist theory and discusses the various means of knowledge representation.

#### **PSY 722 Cross-Cultural Issues in Psychology**

See course description above.

#### **PSY 730 Neuropsychological Assessment**

See course description above.

#### **PSY 788 Advanced Research Methods II**

See course description above.

#### **PSY 789 Applied Data Analysis II**

See course description above.

#### PSY 790 Doctoral Seminar Dissertation and Research Rrogramme Development

See course description above.

## **Research Interests of the Academic Staff**

## Marios Avraamides Assistant Professor

Organisation of spatial memory, spatial updating and orientation, ego motion perception, Reasoning in Virtual Environments.

#### • Fofi Constantinidou Associate Professor

Neuroscience of language and cognition, effects of acquired neurological disorders on cognition, clinical trials on the effectiveness of rehabilitation programs in patients with acquired neurocognitive disorders.

## • Irene - Anna Diakidou

### Associate Professor

Comprehension and learning from text, Knowledge acquisition and conceptual change, creativity.

## Kostas Fantis Lecturer

#### Lecture

Social and emotional development, Developmental psychopathology, Risk and protective processes, Development of different types of psychopathology (e.g., Attention Deficit Hyperactivity Disorder and Conduct disorder), Desensitization to media violence.

## Stelios N. Georgiou

#### Professor

Development in context, application of the systems theory, parental involvement, achievement attributions by parents and teachers.

#### Irini Kadianaki

#### Lecturer

Research examines the social-psychological dimensions of immigration from the standpoint of both immigrants and the local communities in the countries of residence. Specifically, it focuses on examining the ways that immigrants encounter and deal with the stigma of the other and the ways that local communities represent and negotiate the entrance of immigrants. Research aims to understand the conditions under which intersubjective communication is established, facilitated, and or inhibited by studying the ways that people use cultural elements to deal with the psychological demands of lifetransitions. Research primarily uses qualitative research methods.

## Maria Karekla Lecturer

Interface between anxiety-related disorders and behavioural medicine; Investigation of individual difference and other factors in the development, maintenance, assessment, and treatment of stress and anxiety-related problems (in clinical and non-clinical populations); Psychophysiology and new innovative methods in the exploration of these factors and problems; Informing current therapeutic procedures (e.g., Cognitive Behaviour Therapy and Acceptance and Commitment Therapy) by subjecting some of the basic assumptions of clinical behaviour analysis to experimental verification with the aim of achieving behaviour change.

#### • Georgia Panayiotou Associate Professor

Emotion and cognition, psychophysiology, self/focused attention, disruptive behavior disorders in children.

#### • Timotheos Papadopoulos Associate Professor

Reading development and acquisition of reading skills, reading difficulties and subtypes, cognitive profiles of poor readers, diagnosis and remediation, attention and planning deficits.

## Charis Psaltis

Assistant Professor

Social interaction, learning and development. Co-operative learning. Genetic social psychology. Social representations of gender. Intergroup contact and intergroup relations. Intercultural education and integrated schools. Development of national identities. History teaching and collective memory.

#### • Athanasios Raftopoulos Professor

Epistemology, Philosophy and History of Science, Cognitive Science, Philosophy of Mind.

#### •Georgios Spanoudis Assistant Professor

Cognitive development, memory and intelligence, language acquisition and language disorders, pragmatics and semantics, psychophysiology.

## Panayiotis Stavrinides

Lecturer

Research focuses on two main areas: First, it investigates psychopathic traits (lack of empathy and moral judgment, narcissistic traits, and extreme impulsivity) that lead to particular forms of childhood aggression. Second, it examines the relationship between various types of parenting and adolescent abnormal adjustment outcomes (substance use & delinquency).

## **Contact Details**

#### For the Theoretical Programmes in Social Developmental Psychology and Cognitive Educational Psychology

Fofi Constantinidou Associate professor Tel.: 22892078 e-mail: fofic@ucy.ac.cy

#### For the Applied Programme in School Psychology

Georgia Panayiotou Associate professor Tel.: 22892081 e-mail: georgiap@ucy.ac.cy

#### **Department Secretariat**

Ioanna Danielaki Tel.: 22892086 e-mail: danielaki.ioanna@ucy.ac.cy

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Fax: 22895075

http://www.ucy.ac.cy/psych-en

# **Social and Political Sciences**

The Department of Social and Political Sciences promotes research and knowledge in the fields of Sociology and Political Science. It offers undergraduate and postgraduate programmes in these two fields.

The Department offers the following programmes:

- M.A. in Social and Political Theory
- Ph.D. in Sociology
- Ph.D. in Political Science

The Department also participates in the consortium of universities offering the European Master in Human Rights and Democratisation. The Consortium consists of 41 universities from 27 European Union member states and constitutes an example of European inter-university co-operation.



## Introduction

Our mission is to develop and disseminate significant knowledge about politics and sociology at the local, national and international levels.

The research interests of the members of the Department are geared towards the needs of Cypriot society but they also have an international orientation. Emphasis is placed upon interdisciplinary research in the context of wider research projects both in Cyprus and abroad.

## Structure of the M.A. Programme

The M.A. programme in Social and Political Theory is comprised of:

- I. Taught courses
- II. M.A. dissertation

#### I. Taught Modules

Each student is required to follow four compulsory courses and four elective courses that will depend upon the field of research the student wishes to specialise in.

In exceptional cases, following the approval of the Department's M.A. committee, students of the M.A. programme may select one taught course from a different M.A. course as one of their three elective courses, provided that the course is relevant to the student's final M.A. dissertation topic.

#### **II. M.A. Dissertation**

During the third semester of the M.A. course students prepare their dissertation. The thesis must be approximately 15,000 words in length (including references and appendices).

## Admission Requirements for the M.A. Programme

For information on the Admission and Attendance Regulations, as well as the Application Requirements, see page 16. For more information, students may consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, graduates of Greek universities or the University of Cyprus should hold a " $\Lambda(\alpha v K\alpha\lambda\omega \zeta")$  (Very Good) or above degree. The equivalent grade is required from candidates-graduates of other universities. A good knowledge of the English language is required (TOEFL grade 550, GCE O'Level grade B, IELTS grade 6.5). The knowledge of an additional foreign language will be counted as an extra qualification. The yearly number of entrants to the M.A. course is 15.

## Requirements for obtaining the M.A. Degree

For information on the requirements for obtaining a Master degree, see the *Admission and Attendance Regulations* - *Application Requirements* on page 16.

Successful completion of 90 ECTS (European Credit Transfer System) is required. These are allocated as follows:

	ECTS
Courses (4x7.5)+(4x7.5) =	60
M.A. dissertation (1x30) =	30
Total =	90

## European Credit Transfer System (ECTS) credits earned under another M.A. Degree

Students who have successfully completed courses within a different postgraduate programme may be credited with up to 20 ECTS provided that the credits do not correspond to more than two courses. In such cases, the Department examines the application and upon approval, the relevant credits are then deducted from the M.A. programme's required credits from taught courses.

## **Application – Registration**

For information on the Application Requirements and Registration, see the *Admission and Attendance Regulations* – *Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## MASTER PROGRAMME IN SOCIAL AND POLITICAL THEORY

The M.A. in Social and Political Theory offers specialisation in various spheres of sociology and political science with a particular emphasis on theory. Specifically, the M.A. offers specialised training in research methods, which will help students develop skills in processing, critically analysing and investigating social and political issues. The programme provides a scientific basis for the study of specialised subject matter in the theoretical fields of sociology and political science as outlined in the M.A. course syllabus. A further and more general aim of the M.A. programme is to prepare students for Ph.D. study and specialisation in sectors that support social research and research within special programmes.

The programme can be attended on a full-time or parttime basis.

## Calculation of work load (ECTS credits) for the M.A. Programme in Social and Political Theory

The ECTS credit system is based on the calculation of the student's work hours over the period of each semester. One ECTS credit corresponds to 25-30 hours of work per semester. Consequently, 7.5 credit courses correspond to 200 hours of work. It is suggested that the credits be divided as follows, per course:

	ECTS
Three teaching hours x 13 weeks	39
Six hours of guidance meetings with students	7
Students' study time per semester (approximately hours of preparation each week including the stu- time spent for the bibliographical research that is required for the writing of essays)	ten dy 104
Preparation and writing of final essay for the cour	se 50
Total working hours per course per semester	200

For the dissertation, students are required to collect the appropriate reference material, to investigate and present a subject that is related either to Social or Political Theory, in cooperation with their tutor.

## **Proposed M.A. Programme of Studies**

E	CTS
First Semester	
(Two compulsory taught courses and two elective taught courses = 30 ECTS)	
Two Compulsory Taught Courses:	
SPS 510 Interpretative Approaches to Political Theory	7.5
SPS 610 Classical Sociological Theories	7.5
Two Elective Taught Courses from the List below:	
SPS 500 Research Methods	7.5
SPS 511 20th-century Political Concepts and Theories	7.5
SPS 611 Technology and Social Change	7.5
SPS 618 Globalisation and Social Theory	7.5

#### Second Semester

Total	90
SPS 599 Dissertation	30
Third Semester	
SPS 617 Selected Topics in Political Theory	7.5
SPS 616 Sociological and Political Theories of Legitimacy	7.5
SPS 615 Selected Topics in Social Theory	7.5
SPS 614 Sociology of Social Movements	7.5
SPS 613 Social Anthropology	7.5
<b>Two Elective Taught Courses from the List below:</b> SPS 514 Feminist Theory	7.5
SPS 612 Contemporary Sociological Theories	7.5
Two Compulsory Taught Courses: SPS 512 Political Sociology	7.5
(Two compulsory taught courses and two elective taught courses = 30 ECTS)	

## EUROPEAN MASTER IN HUMAN RIGHTS AND DEMOCRATISATION (Joint Degree)

The Department of Social and Political Sciences participates in the Consortium of universities offering the European Master in Human Rights and Democratisation. The Consortium consists of 41 universities from the 27 European Union member states and constitutes an example of European inter-university co-operation.

The academic year of the European Master Programme in Human Rights and Democratisation is divided into two semesters:

- the first semester (September to January) in Venice/ Lido and
- the second (February to July) at an E.MA participating university situated in the Member States of the European Union. This second part of the programme is conceived as a European exchange, and students are expected to undertake their second semester research in a country other than their own.

## Admission

Applications are to be sent to the Secretariat of the European Inter University Centre for Human Rights and Democratisation in Venice, Italy.

#### For more information:

http://ec.europa.eu/external\_relations/human\_rights/ ema/index\_en.htm http://www.emahumanrights.org http://www.eiuc.org

#### **EIUC Secretariat**

European Master Degree in Human Rights and Democratisation (E.MA) Monastery of San Nicolò Riviera San Nicolò 26 30126 Venice - Lido, Italy Tel.: +39 041 2720911 Fax.: +39 041 2720914 Email: secretariat@eiuc.org

### **Coordinator of the European Master**

Kalliope Agapiou-Josephides Assistant Professor Tel.: (+357) 22894562 E-mail: agapiouj@ucy.ac.cy

### **Participating Universities**

The European Master Programme in Human Rights and Democratisation is organised through the joint efforts of the following participating universities: Abo Akademi University (Finland), Adam Mickiewicz University in co-operation with the Poznan Human Rights Centre (Poland), Aristotle University of Thessaloniki (Greece), Masaryk University of Brno (Czech Republic), Ca' Foscari University of Venice (Italy), Catholic University Leuven (Belgium), University of Coimbra (Portugal), Comenius University of Bratislava (Slovak Republic), University of Copenhagen (Denmark), University of Cyprus (Cyprus), University of Deusto, Bilbao (Spain), National University of Ireland, Dublin - University College Dublin (Ireland), University of Hamburg (Germany), University of Helsinki (Finland), National University of Ireland, Galway (Ireland), University of Graz (Austria), Eotvos Lorand University of Budapest (Hungary), University of Latvia (Latvia), Université Libre de Bruxelles (Belgium), New University of Lisbon (Portugal), University of Ljubljana (Slovenia), Lund University (Sweden), Université du Luxembourg (Luxembourg), Maastricht University (Netherlands), University of Malta (Malta), Université de Montpellier (France), University of Nottingham (United Kingdom), University of Padua (Italy), Panteion University, Athens (Greece), Queen's University of Belfast (United Kingdom), Université Robert Schuman, Strasbourg (France), Ruhr-University Bochum (Germany), University of Seville (Spain), University of Southern Denmark in co-operation with the Danish Institute for Human Rights (Denmark), University of Tartu (Estonia), Uppsala University (Sweden), Utrecht University (The Netherlands), University of Vienna (Austria), Vilnius University (Lithuania), University of Bucharest (Romania) and Sofia University St Kliment Ohridski (Bulgaria).

## **Ph.D. Programmes**

The Department of Social and Political Sciences offers two Ph.D. programmes:

• Ph.D. Programme in Sociology

• Ph.D. Programme in Political Science

### **Admission Requirements and Study Rules**

For information on the admission requirements for Ph.D. programmes, see the *Admission and Attendance Regulations – Application Requirements* on page 16, or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, good knowledge of English is a prerequisite. Knowledge of a second European language will be considered an additional qualification. The annual number of entrants to the Ph.D. programme is six.

It is also noted that according to the Admission and Attendance Regulations "within the framework of student exchange, a Ph.D. student may spend up to one calendar year of study at a university abroad."

## Requirements and Structure of the Ph.D. Programmes

For information on the requirements and the structure of the Ph.D. programmes, see the Admission and Attendance Regulations – Application Requirements on page 16 or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat. In brief, the requirements and the structure of the Ph.D. programmes are as follows:

#### (1) Research supervisor

A research supervisor, appointed by the Department Council, is required to guide the student toward the completion of the Ph.D. dissertation.

#### (2) Course attendance

The staff responsible for the course may advise any Ph.D. candidate to follow courses from the M.A. programme if they consider this necessary for the Ph.D. candidate's research, and/or that doing so will help develop the research topic.

#### (3) Approval of Ph.D. proposal

During the third semester of postgraduate study, Ph.D. candidates conduct preliminary research, which will lead to a detailed Ph.D. proposal.

### (4) Comprehensive examination

Each candidate is required to successfully complete a comprehensive written examination, no later than the fifth semester. The department organises these examinations every September.

#### (5) Ph.D. thesis

The completion of an original doctoral thesis is another requirement of the programme. The thesis must be an important contribution to the subject. The Ph.D. thesis may be written in a language other than Greek if: a) the candidate's first language is not Greek, and b) the research supervisor agrees.

#### (6) Defence of Ph.D. thesis

The thesis is defended before a five-member examining board.

## (7) Duration of study

A Ph.D. degree may be completed in a minimum period of six (6) semesters and a maximum of sixteen (16) semesters starting from the date of admission.

## (8) Successful completion of 240 ECTS

Successful completion of 240 ECTS (European Credit Transfer System) is required. The credits break down as follows:

- Total	240 ECTS
<ul> <li>Writing of postgraduate thesis</li> <li>(2 semesters x 30 ECTS)</li> </ul>	60 ECTS
– Research (4 semesters x 30 ECTS)	120 ECTS
- Courses (credited by the MA programme)	60 ECTS

## **Submission of Application - Registration**

For information on the application requirements and registration, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, applicants must also consider the following:

(a) Candidates who have not yet completed their M.A. programme but are enrolled and are studying for the degree, may be accepted provided they complete their studies by the 31st of July of the year that they will be enrolling for the Ph.D. course, following the approval of the Postgraduate Committee.

- (b) Evidence (e.g., certificate) of good knowledge of the English language.
- (c) A statement describing the candidate's scholarly and research interests.

## **Course Descriptions**

#### **SPS 500 Research Methods**

The course aims to help students understand the process of developing research following scientific methods and approaches. The course will include: ways of choosing research questions, the importance of reviewing bibliography, developing theoretical research frameworks, categories of variables, research questions, research hypotheses, formulation of questionnaires and other methods of measuring, the validity and credibility of methods of measuring, internal validity, research ethics, sampling techniques, methods of data collection, data analysis and interpretation of results using the statistics package SPSS, various kinds of research, authoring a scientific research paper.

#### SPS 510 Interpretative Approaches to Political Theory

The course investigates the methodological problems related to the study and interpretation of the history of political thought. When political terms such as justice, rights, freedom, etc., are examined through the written statements of political thinkers, crucial methodological issues arise that are related to the historicity of concepts, the universality of ideas and how those ideas are understood. Separating history from philosophy and treating the two as different subjects of scientific investigation brings up the question of whether the history of political thought belongs to historical research or to philosophical investigation. If interpretative reading should occur following an eclectic collaboration between the two then what is the relationship between these two methods of investigation? There are many suggested methodological approaches concerning the reading of political ideas. These will be examined through critical interpretation and analysis of the works of each approach's main proponent. The research methods suggested and developed by R.G. Colingwood, M. Oakeshott, L. Strauss, A. Lovejoy and Q. Skinner and others will be analysed.

#### SPS 511 20th-Century Political Concepts and Theories

The course focuses on the two-way relationship between the political perceptions and the defining historical events of the 20th century. During the 20th century, liberalism was boosted and redefined, national socialism appeared in the political forefront and became a formal state dogma, Marxism experienced such a fragmentation that the use of the term in its singular form became utterly problematic (western Marxism and "critical theory", Stalinism, reformism). The clash of ideologies and the concurrent social movements to an extent determined the historical developments that consequently became the basis for new ideological directions, differentiations within trends of thought, new convergences and divergences between the various schools of political thought and the number of newly founded ideological trends within each line of thinking.

#### SPS 512 Political Sociology

The course investigates the main terms and theoretical debates, the methodology and the themes of political sociology. The social foundation of political phenomena is investigated through the analysis of various systems of political structure, different forms of political action, the role of ideology and the procedures of political opposition and change. The course places special emphasis on theoretical issues, but always in conjunction with analysis of empirical data.

#### SPS 514 Feminist Theory

The course examines the various philosophical trends and currents that comprise the intellectual legacy of contemporary feminism. First, the development of feminist thought is investigated from a historical-sociological angle. In addition, the module examines the theoretical oppositions that reflect women's various needs and perceptions in different societies and under different conditions that, in turn, originate from the founding of feminism within antagonistic ideological traditions.

#### SPS 610 Classical Sociological Theories

The course examines the work of sociology's most important thinkers of the classical period (from around the mid-19th century up to the mid-20th century). The course's main aim is the indepth analysis of the most important issues of classical sociological theory. Special emphasis is placed on questions concerning the methodology of the social sciences, the appearance of modernism and modern society's capitalist character.

#### SPS 611 Technology and Social Change

The course investigates the social effects of technology that can only be understood through the systematic analysis of people's everyday lives. The following points will be tackled: the comprehension and analysis of bibliographical references, the investigation of the theories and models of technological innovation and social change and their inter- relationships; how are the institutional, cultural and political elements connected to technological transfer acquired? The methods of determining the effects of technological change will be studied and the alternative of planned technology that is linked to social change will be critically analysed based on case studies in Cyprus and Europe.

#### SPS 612 Contemporary Sociological Theories

The course examines the work of the most important thinkers of sociology in modern times (from around the mid-20th century until the present day). The course's main aim is the thorough discussion of the major issues in contemporary sociological theory.

Questions regarding the methodology of social sciences and the character of social reality will be posed and social change in modern society will be analysed.

#### SPS 613 Social Anthropology

The course examines social anthropology's main theoretical trends with a special emphasis on more recent approaches and on social anthropology's contribution to social theory. The basic theoretical approaches will be discussed (functionalism, structural functionalism, structuralism, Marxist anthropology, action theories, anthropology of the social gender, interpretative anthropology, post-modernism, and post-colonial critique) with the main reading material being each school's classic ethnographies. Additionally, a series of thematic categories such as gender, religion, capitalism and the body will be discussed from the different angles of approach suggested by the different theories.

#### SPS 614 Sociology of Social Movements

The history of social movements poses a serious theoretical problem concerning social analysis. On the one hand, there is a temptation to search for deterministic regularities that limit the scope of the effect of social movements, but on the other, social movements are dangerously easy to find everywhere. Therefore, the module will focus on the internal differentiation of social movements and it will then move on to their historical formalisation, comparing the various tactics and strategic methods of movements. The interaction among political parties, social classes, ethnic and religious groups will be examined along with the fluid relationship and antithesis between revolutionary and social movements or pressure groups. Both micro-sociological and macro-sociological approaches will be examined.

#### SPS 615 Selected Topics in Social Theory

The specific content of this course is determined by the instructor, but will reference the basic themes of social theory and issues of contemporary relevance. The class will offer in-depth discussion of the selected topics, as well as advanced-level analysis and research.

#### SPS 616 Sociological and Political Theories of Legitimacy

The course mainly analyses the effects of both political sociology and the sociology of law on contemporary governance theories of sovereignty and legalisation. First, we will reconstruct and interpret the theories that are silently being borrowed from sociological thinking and political theology by the modern constitutional theories of legalisation and state control. We will then discuss the conflict between constitutionalism and democracy and the matter of guaranteeing the constitutional regime under weak or strong rule. The concepts of conformity to the law, pluralism, social and national coherence, war, coup, revolution, legal and illegal use of violence with regards to the constitutional right of resistance will be critically investigated. The module's theoretical horizons are the works of Marx, Weber, Calhoun, Schmitt, Arendt, Kelsen, Luhmann, Ackerman, Elster, Holmes, Kondylis, Przeworski, Arato and Habermas.

#### SPS 617 Selected Topics in Political Theory

The specific content of this course will depend upon the instructor, but will cover the basic areas of political theory and issues of contemporary relevance. The course will offer students in-depth coverage of the selected topics, as well as advancedlevel analysis and research.

#### SPS 618 Globalisation and Social Theory

The course presents the main social theories that seek to interpret globalisation. Starting from the school of world systems and the theories of international relations, the course covers the classical approaches as they have developed in the current international literature. The course will use both primary sources and secondary sources. Themes such as the historicity of globalisation, the relationship between cosmopolitanism, internationalism and globalisation will be examined. The State's role in the new reality will also be investigated.

## **Research Interests of the Academic Staff**

## Kalliope Agapiou-Josephides Assistant Professor

Holder of Jean Monnet Chair in European Political Integration. European Political Integration with an emphasis on institutional aspects, Common Foreign and Security Policy, Euro-Mediterranean Partnership. European Union and Cyprus with an emphasis on accession and harmonization process. Women and Politics.

## Marios Constantinou

## Assistant Professor

Micro-macro linkages between contemporary social theory and constitutionalism under post-colonial conditions in ethnically divided societies; phenomena of polycentric legitimation of power by reference to subsystems; sociology of culture with special interest in the management of post-modern challenges from ethnic diasporas in the European periphery.

#### • Kyriakos Demetriou Associate Professor

Ancient political thought with emphasis on the Sophists, Plato and classical constitutions. Issues in modern political thought, especially British Empiricism, Liberalism (seventeenth century) and philosophical radicalism/ utilitarianism (nineteenth century). The reception of classical antiquity in modern European historiography. Contemporary research interests include theories of democracy and the interpretation of Platonic political philosophy.

#### • Maria Hadzipavlou Assistant Professor

Conflict Resolution – ethnic and international conflict with an emphasis on Cyprus. The comparative application of the "Linkage model" at macro and micro levels on multi-ethnic societies which experience stability and others which have not resolved their differences. The role of narrative as a tool in conflict resolution. The role of feminism and gender in understanding politics - a comparative approach in European and non-European societies. Gender and conflict and the exclusion of women from the negotiation process in Cyprus, Israel and Ireland.

#### Joseph S. Joseph

#### Professor

Professor Joseph is on leave serving as Ambassador in Greece.

#### Savvas Katsikides Professor

Holder of Jean Monnet Chair. Industrial Sociology, Sociology of Technology, the Relation between Technology and Society, Theoretical Sociology, Sociology of Work and Research Methods, European Economic and Social Integration, Basic Research in Sociological Theory.

## Caesar V. Mavratsas

#### Associate Professor

The social construction of ethnic and national identity. The comparative-historical analysis of nationalist ideology, with an emphasis on Cyprus and Greece. The distinction between the production and the consumption of ideology. The internal constitution of the Greek Diaspora. The economic culture of ethnic groups in the USA. The formation and intergenerational evolution of Greek-American economic and political culture. Specialized areas in political sociology include civil society and relations of patronage. The sociology of knowledge, with an emphasis on the consciousness of everyday life.

## Yiannis Papadakis

#### Associate Professor

The study of nationalism in a comparative-historical perspective as a process of interaction and negotiation through social action. The construction and contestation of social memory through commemorative rituals. Structure and characteristics of historical narratives. Representations of the past in museums. The relation between language and dialect. The social negotiation of conflict, danger, uncertainty. Fieldwork has been conducted in Nicosia (both sides), Turkey, Pyla.

#### Victor Roudometof Associate Professor

Globalization and International Studies, American and European Studies, Sociology of Religion, World-Historical and Comparative-Historical Sociology and World History, Cultural Studies, Political Sociology, especially nationalism and ethnicity in the Balkans and the Ottoman Empire, Race, Ethnicity, Transnationalism and International Migration.

#### Stavros Tombazos Assistant Professor

Political Economy with emphasis on issues and aspects related to globalization, European political and economic integration, systems of international hegemony and dependence, sustainable development, and the relation between economic dynamics and ecological problems. Political Philosophy with focus on the German political theories of the 19th and 20th centuries. Other research interests in the areas of theories of the state and of social classes, civil society and social movements.

## **Contact Details**

#### **Coordinator of Postgraduate Studies**

Savvas Katsikides Professor Tel.: 22894565 e-mail: savvask@ucy.ac.cy

#### **Department Secretariat**

Elena Petridou-Challouma Tel.: 22894560 Fax: 22894559 e-mail: elenap@ucy.ac.cy

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http://www.ucy.ac.cy/sap-en



## FACULTY OF ECONOMICS AND MANAGEMENT

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Department of Economics (178)

Department of Public and Business Administration (188)

Centre for Banking and Financial Research (204)

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# **Economics**

The aim of the Department of Economics is to advance economics at the national and international level.

The Department offers the following three Master degrees:

- Master Degree in Economic Analysis (MECA) (this degree is designed for students who plan to continue their studies for a Ph.D. degree)
- Master Degree in Economics (MECO)
- Master Degree in Monetary and Financial Economics (MMFE)

The second and third programmes (MECO, MMFE) are designed for students who do not intend to continue their studies for a Ph.D. degree.



## Introduction

The science of Economics studies the behaviour of human beings both as individuals and as organised society. As individuals we continuously face economic problems, such as whether and how much to save, what goods and services to purchase, and how to increase and use our income to satisfy the multitude of our economic needs. Every society faces a continuously changing international economic environment and has to take economic decisions such as entering into trade alliances or participating in an economic union, like the European Union. It also faces economic problems at home such as unemployment, balance-of-payments inflation, disequilibrium; and economic challenges such as trade alliances and economic unions. A nation's effective solution to these problems determines its standard of living and consequently its ranking in the international community.

Understanding the economic behaviour of the individual and the basic principles that govern the functioning of a modern economy enables the economist to evaluate economic indicators and information correctly and to make rational decisions. With such knowledge the economics graduate can pursue a career in civil service, banking, education, or research and advance to an important position in the public or private sector.

Our Department strives to offer high quality graduate programmes that teach the state of the art in economics in order to allow its graduates to compete effectively with the graduates of the best foreign universities.

## **Aims of the Department**

- (a) To equip students with qualifications that make them attractive to employers in Cyprus and which are comparable to those of the best universities abroad
- (b) To engage in research with a view to producing results of high academic standards
- (c) To set the standards for the discussion of economic issues and appropriate economy policy decisions in Cyprus

The Department's teaching philosophy is to encourage students to study economic issues in depth and with independence of mind. For this reason the emphasis in the teaching programme is to help students develop strong analytical skills and acquire the ability to critically assess economic arguments. We pursue these objectives through a rigorous teaching programme covering mainstream subjects based on contemporary methods of economic analysis.

The teaching and research programme of the Department is also concerned with economic issues of interest to Cyprus. The objective is to provide a constructive framework for scientific investigation of such problems. We believe that a high international profile of the Department will contribute to resolving local problems. The Department aims to become a centre for thorough study of economic issues concerning Cyprus - a centre that will provide results that may serve the Government and other local institutions to reach appropriate economic policy decisions.

## **Research at the Department**

We believe that research of a high academic standard is necessary to raise the international profile of the Department. Members of staff are strongly encouraged to undertake research both individually and by pooling their resources in teams and through collaborations with academics abroad. In this respect the Department has created the conditions required for research of the highest academic standard, such as the establishment of adequate research facilities (library, computers, databases, etc.), encouraging exchange visits with academic institutions abroad, and the participation in, and organisation of, international conferences. Furthermore, the Department facilitates national and international dissemination of research output through a discussion paper series.

All members of the academic staff are actively engaged in research on topics of local and international interest. Emphasis is placed on producing results of high academic standard, publishable in reputable academic journals. Attention is also focused on the investigation of issues pertaining to the Cyprus economy and its relationship with the European Union. The researchers in the Department collaborate with researchers in top universities and research organisations overseas like University College London, Institute for Fiscal Studies, Tilburg University, University of North Carolina, Penn State University, University of Illinois, Tufts University, Vanderbilt University, Carnegie-Mellon University, and others.

The research agenda of Department faculty covers a broad range of topics in theoretical and empirical economics and in econometrics. An important debate in the international literature examines the mechanisms that lead to sustainable economic growth. Members of our faculty contribute to this research programme with the use of sophisticated econometric methods to identify the factors that lead to economic growth. Identifying these factors is crucial in formulating the right policies to lift countries out of poverty and onto a path of sustained economic growth. Other topics in international economics that are being researched in the Department are the rate of convergence of European economics and international differences in prices of consumer goods.

Research in the field of international trade focuses on the following areas: (a) the effects of worker migration on welfare, real wages and public goods production, both in the country of origin and in the destination country; (b) economic aid to developing countries, its effects on welfare and employment, and identifying the most effective ways of providing aid; (c) the functioning of international markets in used goods and their contribution to consumer welfare; and (d) the creation of free trade areas and their impact on international trade flows.

Research on consumer economics includes the theoretical development and empirical application of demand systems for the analysis of consumer behaviour and welfare. These systems are used to evaluate the impact on households and their constituent members of various policies such as taxation and child support schemes. In relation to producer behaviour there is ongoing research aimed at the theoretical and empirical analysis of the effects of infrastructure and publicly financed capital on productivity. Other research in the area of firm behaviour examines strategic pricing and quality choice, competition issues, the determinants of exporting activity and productivity gains from exporting.

Research is also conducted on topics of special interest to Cyprus. Some representative topics include: (a) development of a macroeconomic model of the Cypriot economy for the purpose of analysis and forecasting; (b) productivity analysis of the various sectors of the Cyprus economy and comparison with EU and other countries; (c) the effectiveness of public expenditure; (d) the impact of the mass importation of used cars on the Cyprus market; (e) viability of the social security system; and (f) the competitiveness of the Cyprus tourist product.

The University library has a large collection of books in economics and econometrics and subscribes to a large number of journals. There are also time-series and crosssectional economic data for Cyprus, European Union countries and the rest of the world. The Department has advanced computer hardware and software to support academic research by academic staff and graduate students. Study and research by undergraduate and graduate students benefits from a modern computer lab, maintained jointly with the department of Public and Business Administration. There are also several research programmes with external or internal funding in which graduate students can be employed during vacation periods for financial gain and work experience. All these create a fertile environment where graduate students can acquire skills and knowledge that enhance their employment prospects.

## Master Programmes

#### **Admission Requirements**

In addition to the requirements described in the relevant *Admission and Attendance Regulations* (see page 16), candidates for the graduate studies programme are required to have a grade of 550 in the TOEFL examinations or 213 in the TOEFL computer-based format exam or B in the GCE O-Level examinations or an equivalent qualification demonstrating sufficient knowledge of the English language (by previously obtaining a degree from an accredited U.K. or U.S. academic institution, for instance).

For more information on applications to join the graduate programme of economics, see the *Admission and Attendance Regulations – Application Procedures* on page 16.

An undergraduate degree in economics is not necessary for these programmes. All programmes have been designed to accommodate students of diverse backgrounds, particularly students in technical fields such as mathematics, statistics and mechanics.

#### **General Programme Structure**

The normal duration of all programmes for full-time students is three semesters. The maximum time allowed for completion of a degree is eight semesters.

All Master Degrees are awarded upon successful completion of at least 90 credit units (ECTS) in graduate courses. For the Master Degree in Economics and the Master Degree in Monetary and Financial Economics programmes, the completion of eight courses and a Master thesis is required. For the Master Degree in Economic Analysis programme, the requirement is twelve courses or eight courses plus a Master thesis. Courses are separated into two categories: required and elective courses. Required courses give essential background in microeconomics, macroeconomics and econometrics. Elective courses give students the opportunity to specialize in their area of interest. Required courses for each Master programme are described below.

#### **Master Thesis**

(ECO 698 – 24 ECTS, MECO and MMFE) (ECO 699 – 30 ECTS, MECA)

The thesis should demonstrate in-depth knowledge of a particular topic and should contain original research elements. The thesis is presented to students and faculty and is marked independently by the student's advisor and a member of staff with similar research interests appointed by the Departmental Committee of Graduate Studies. If work on the thesis extends beyond one semester, students can register in ECO 600 Master Thesis (1 ECTS) for at most two subsequent semesters.

## **MASTER IN ECONOMIC ANALYSIS (MECA)**

The programme aims to prepare students to proceed to a Ph.D. degree in Economics. The Programme of Studies is as follows:

	ECTS
First Semester	
ECO 601 Microeconomic Analysis I	7.5
ECO 602 Macroeconomic Analysis I	7.5
ECO 603 Statistics and Econometrics I	7.5
ECO 604 Analytical Methods in Economics	7.5
Second Semester	
ECO 651 Microeconomic Analysis II (ECO 601)	7.5
ECO 652 Macroeconomic Analysis II (ECO 602)	7.5
ECO 653 Statistics and Econometrics II (ECO 603)	7.5
Note: The courses in brackets are prerequisites	
One course from:	
ECO 605 International Trade	7.5
ECO 606 International Finance	7.5
ECO 611 Labour Economics	7.5
ECO 612 Industrial Organisation and Policy	7.5
ECO 613 Public Economics	7.5
ECO 641 Consumer Theory and Applications	7.5
ECO 673 Applied Microeconometrics	7.5
ECO 680 Applied Financial Econometrics	7.5
Third Semester	
ECO 699 Master Thesis	30

Notes:

- 1. Students may replace an elective course with a graduate course offered by other University Departments, following approval from the Department Board.
- 2. Students may replace an elective course with an undergraduate course offered by other University Departments, following approval from the Department Board.
## **MASTER IN ECONOMICS (MECO)**

This programme is designed for students who want to acquire an in-depth understanding of economics in general without specializing in a specific area.

	ECTS
Compulsory Courses	37.5
ECO 661 Microeconomics	10
ECO 662 Macroeconomics	10
ECO 663 Econometrics	10
ECO 673 Applied Microeconometrics	7.5
Elective Courses	30
Four courses as follows:	
A. At least three from:	
ECO 605 International Trade	7.5
ECO 611 Labour Economics	7.5
ECO 612 Industrial Organisation and Policy	7.5
ECO 613 Public Economics	7.5
ECO 641 Consumer Theory and Applications	7.5
B. At least one from:	
ECO 606 International Finance	7.5
ECO 610 Money, Banking and Financial Economics	7.5
ECO 643 Monetary and Financial Analysis	7.5
ECO 644 The Economics of Firm Financing	7.5
ECO 646 Monetary Economics	7.5
Master Thesis	24
The thesis must be related to the specific programme a	nd
must satisfy the criteria specified above (General Progra	amme
Structure – Master Mesis).	

## MASTER IN MONETARY AND FINANCIAL ECONOMICS (MMFE)

This programme is designed for students who want to acquire specialized knowledge with the purpose of seeking employment in the areas of monetary and financial economics, either in the public or in the private sector.

	ECIS
Compulsory Courses	37.5
ECO 661 Microeconomics	10
ECO 662 Macroeconomics	10
ECO 663 Econometrics	10
ECO 680 Topics in Financial Econometrics	7.5
Electives Courses	28.5-30
Four courses from:	
ECO 606 International Finance	7.5

ECO 610 Money, Banking and Financial Economics	7.5
ECO 643 Monetary and Financial Analysis	7.5
ECO 644 The Economics of Firm Financing	7.5
ECO 646 Monetary Economics	7.5
Upon Department approval, one of the above courses can be replaced with a course offered by the Department of Public and Business Administration from the following list	:
PBA 521 Financial Theory	7
PBA 522 Investments	7
PBA 530 Seminar on Cyprus Economy, Banking and Financial Markets	6
Master Thesis	24
The thesis must be related to the specific programme and	

must satisfy the criteria specified above (General Programme Structure – Master Thesis).

## **Doctoral Programme**

The goal of the Ph.D. programme in Economics is to provide training to individuals to become high quality researchers in line with international standards. Our aim is for our graduates to be able to successfully compete for employment at research institutions, public policy organisations, and the private sector. The creation of a dynamic research community at the University of Cyprus will raise the level of economic research in Cyprus and will infuse public debate on economic policy with scientific methods and rigorous analysis.

## **Admission Requirements**

Minimum requirements for admission to the Ph.D. programme are:

- 1. Master degree in Economics or related field (e.g., mathematics, statistics). Applicants much have fulfilled all requirements of their Master degree by the month of September in the year of admission.
- 2. Very good command of the English language, certified by international examinations, such as GCE, TOEFL or other examinations.

## **Programme Structure**

The Ph.D. programme is a four-year programme (eight semesters, 240 ECTS). Three semesters are taken up by coursework and a minimum of five semesters are required for the research phase.

## A. Coursework - Comprehensive Examinations

During the first year, students take compulsory courses which prepare them for the comprehensive examinations in Microeconomics, Macroeconomics and Econometrics at the end of the year. Students must complete this requirement no later than their fifth semester of studies. Full details about the examination are provided in the Comprehensive Examination Guide.

#### **B. Specialization - Submission of Research Proposal**

During the second year of studies, students take four field courses which give them the opportunity to acquire expertise in their area of interest. At this stage, students are expected to discuss their research interests with faculty members, a process that will lead to a mutual agreement between the student and a faculty member who will become the student's main advisor. Under the guidance of the advisor, the student will prepare and successfully defend his/her research proposal by the end of the third year of studies.

#### C. Research - Submission of Dissertation

Students will conduct their research under the guidance of their advisor.

## **Credit for Previous Coursework**

Credit may be given for up to one year's graduate level coursework (60 ECTS) taken at other universities. Students cannot be exempted from the comprehensive examinations. Completion of the Ph.D. requires that students study at least three years at the University of Cyprus. Students must also take at least 30 ECTS from University of Cyprus elective courses (therefore, courses ECO 601/602/603/651/652/653 are excluded).

ECTS
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Any course considered by the Department Board to have low attendance can be taught as a Reading Course or as an Independent Study (ECO 693 and ECO 696). Students cannot select more than two Reading Courses. Students may replace up to two elective courses with undergraduate courses offered by other University Departments, upon approval from the Department Board.

## **Research Stage**

Students who pass their comprehensive examinations have the following additional responsibilities in each semester of their research and writing stages:

- a. They must attend the weekly departmental seminar series and the workshop in economic research (at least 80% of them)
- b. They must present their research before the workshop in economic research (students signed up for research stage 15 ECTS are exempted from this requirement)

The director of graduate studies is responsible for overseeing the completion of the above requirements of doctoral students.

## **Comprehensive Examinations in Economic Analysis and Econometrics**

The comprehensive examination is offered in September and consists of three parts: Microeconomic Analysis, Macroeconomic Analysis and Econometrics. Full details about the comprehensive examinations and the syllabuses are provided in the Comprehensive Examination Guide.

#### **Defence of Research Proposal**

By the end of the sixth semester, students are required to have prepared and successfully defended their research proposal.

Students are expected to demonstrate their ability to study a new subject in an original way, and knowledge of the appropriate research methods. They are also expected to present some supportive preliminary results.

#### **Defence of the Thesis**

Candidates give a brief oral summary and answer questions on the content and results of the Ph.D. thesis. Candidates are expected to defend the thesis, demonstrate its originality and justify deviations from previous results in the literature.

For more information on Attendance *Regulations of Postgraduate Studies, see the Admission and Attendance Regulations – Application Procedures* on page 16, or consult the Graduate School (tel. 22894021/44).

## **Additional Remarks**

#### **Financial Support for Doctoral Students**

The department makes every effort to ensure that doctoral students have enough income to allow them to live independently. This is accomplished mainly through their employment as research assistants. The Department also awards some grants, while students can also secure employment as research assistants.

## **Course Descriptions**

#### ECO 601 Microeconomic Analysis I (7.5 ECTS)

Rigorous study of market structures (perfect competition, monopoly, monopolistic competition, and oligopoly), theory of distribution under perfect and imperfect competition, capital theory and introduction on general equilibrium and welfare economics. Depending on the course duration, the course will proceed with a rigorous treatment of production functions, cost functions and duality.

#### ECO 602 Macroeconomic Analysis I (7.5 ECTS)

This course reviews the traditional "workhorse" models of Macroeconomics and surveys recent developments in this exceptionally active field. Models of income, interest rate, price level, exchange rate, and balance of payments surplus/deficit determination are reviewed. New theoretical developments involving the microeconomic foundations of macro models, inflation and unemployment, growth and real business cycles are considered.

#### ECO 603 Statistics and Econometrics I (7.5 ECTS)

Probability Theory. Random Sample. Regression, Prediction and related notions. The Linear (Normal) Regression Model: Estimation, Hypothesis Testing, Misspecification Testing. Generalized Linear Regression. Elements of Time-Series. Heteroskedasticity and Autocorrelation. Dynamic Linear Regression. Nonlinear Regression. Multivariate Regression Systems. The Simultaneous-Equation Model. Generalized Method of Moments. Limited Dependent Variables. Panel Data Models.

#### ECO 604 Analytical Methods in Economics (7.5 ECTS)

Economic modelling and equilibrium analysis. Linear models and matrix algebra. Comparative static analysis. Constrained and unconstrained optimization methods. Dynamic methods in continuous and discrete time.

#### ECO 605 International Trade (7.5 ECTS)

The course analyzes the traditional trade theory as well as the "new trade theory." The first part of the course covers absolute and comparative advantage as well as the Heckscher-Ohlin model. The second part examines optimal tariffs in situations where countries have market power and strategically interact with each other. These methods are used to examine economic integration at both the regional and global levels.

#### ECO 606 International Finance (7.5 ECTS)

Introduction to the main puzzles in international economics and the theories that attempt to explain these. Review of the properties of the international business cycle and introduction to international real business cycle theory, with the goal of understanding international co-movement of macroeconomic variables and synchronization across national economies. A look at international relative prices, including the study of longrun determinants of real exchange rates and an analysis of the related issues of Purchasing Power Parity and the Law of One Price, with the goal of understanding segmentation of international markets and the evidence for international price convergence.

#### ECO 610 Money, Banking and Financial Economics (7.5 ECTS)

This course examines financial markets and institutions. We analyze recent research developments in financial markets (such as bonds, stocks and foreign exchange) and financial institutions (banks, insurance companies, mutual funds, etc.). Topics to be covered will be chosen from the following: financial markets, financial institutions, the financial system, prices and exchange rates, money and bond markets, interest rates, inflation, stocks, bonds, portfolio choice, European economic convergence, and others.

## ECO 611 Labour Economics (7.5 ECTS)

This course begins by examining static and dynamic theories of the demand for and supply of labour as well as their interaction in the context of the competitive paradigm. Emphasis is placed on econometric methods for the empirical implementation of these models. Studies of wage outcomes and apparent deviations from the competitive norm are then considered. A number of non-competitive labour market models are reviewed as well as empirical attempts to discriminate amongst them. The course ends with an examination of issues relating to possible failure of the labour market to clear, e.g., wage rigidity and unemployment.

#### ECO 612 Industrial Organisation and Policy (7.5 ECTS)

Industrial organisation is concerned with the study of imperfectly competitive markets. The course aims to develop an understanding of competitive interaction in such markets; to introduce the empirical methods used to analyze them; and to outline the basic policy principles that govern their operation. Indicative topics include estimation of supply and demand, estimation of cost and production functions, monopoly regulation, oligopoly models, collusion and cartels, mergers, product differentiation, barriers to entry.

## ECO 613 Public Economics (7.5 ECTS)

This course examines the effects of fiscal policy on the economy through taxation and public expenditure from both positive and normative points of view. Both positive and normative aspects of public policy are examined in relation to issues like the role of the state, the taxation of goods and services, the effect of taxation on labour supply and savings, the taxation of company profits and its effects on corporate finance and investment and the incidence of taxes. Also examined from the public expenditure point of view are topics on market imperfection such as public goods, externalities and social insurance. In several topics reference is made to the public sector in Cyprus and conclusions drawn from empirical analysis are presented.

#### ECO 641 Consumer Theory and Applications (7.5 ECTS)

The objective of this course is to provide comprehensive knowledge of consumer theory with emphasis on the use of econometric techniques and data for the empirical analysis of consumer behaviour at the individual and aggregate level. Following a brief review of the fundamental principles of consumer theory (preferences and constraints, optimisation and duality) the course will focus on demand analysis as a tool for studying behavioural and welfare aspects of consumer theory. Separability, aggregation, dynamics and participation will also be examined. The last few lectures of the course will concentrate on topics drawn from applied demand analysis topics including externalities and public goods, cost of living indices and quality, equivalence scales, intrahousehold allocation and the analysis of tax and benefit reforms.

#### ECO 643 Monetary and Financial Analysis (7.5 ECTS)

Properties of assets, demand for money, saving and portfolio selection. Equilibrium models of asset pricing. Empirical puzzles in portfolio selection and asset pricing. Human behavior, portfolio choice, and the financial system. The design of optimal monetary policy rules, the monetary transmission mechanism and the role of the banking system.

#### ECO 644 The Economics of Firm Financing (7.5 ECTS)

The course examines among other topics the valuation of a firm's financial condition, bond, stock and option valuation, the trade-off between risk and return, valuation of investment projects, creating value for shareholders, global financial markets and their impact on raising long-term capital, establishing a target capital structure and dividend policy.

#### ECO 651 Microeconomic Analysis II (7.5 ECTS)

This course continues the analysis of the principles of microeconomic theory and is divided into two parts. The first part will develop the basic principles of game theory under conditions of both complete and incomplete information and will apply these to the analysis of problems such as collusion, bargaining, auctions, moral hazard, and adverse selection. The second part will serve as an introduction to general equilibrium theory and its extensions, and will discuss the general theorems of welfare economics.

#### ECO 652 Macroeconomic Analysis II (7.5 ECTS)

Analytical approach to basic macroeconomic models with finite and infinite horizons in discrete and continuous time. Introduction to real business cycle and international real business cycle models. Endogenous growth theory with emphasis on R&D-based models and international technology diffusion.

#### ECO 653 Statistics and Econometrics II (7.5 ECTS)

Basics of probability and statistics, the bootstrap, generalized method of moments, endogeneity, simultaneous equation models, limited dependent variables, panel data models, nonparametric density estimation, nonparametric regression estimation.

#### ECO 661 Microeconomic Analysis (10 ECTS)

The course will begin with a review of the classic theories of consumer and producer behavior and proceed to the description of basic market structures and the analysis of factor markets. It will then lay out the basic principles of game theory under conditions of both complete and incomplete information. These will be the tools for the analysis of topics in modern microeconomic theory such as bargaining auctions, moral hazard and adverse selection.

#### ECO 662 Macroeconomic Analysis (10 ECTS)

This course reviews the traditional "workhorse" models of macroeconomics and surveys recent developments in this exceptionally active field. Models of income, interest rate, price level, exchange rate, and balance of payments surplus/deficit determination are reviewed. New theoretical developments involving the microeconomic foundations of macro models, inflation and unemployment, growth and real business cycles are considered.

#### ECO 663 Econometrics (10 ECTS)

Probability Theory. Random Sample. Regression, Prediction and related notions. The Linear (Normal) Regression Model: Estimation, Hypothesis Testing, Misspecification Testing. Generalized Linear Regression. Elements of Time-Series. Heteroskedasticity and Autocorrelation. Dynamic Linear Regression. Nonlinear Regression. Multivariate Regression Systems. The Simultaneous-Equation Model. Generalized Method of Moments. Limited Dependent Variables. Panel Data Models.

#### ECO 673 Applied Microeconometrics (7.5 ECTS)

Brief review of the classical linear regression model. Econometric models for cross-section data and time-series data. Economic applications and the use of specialized econometric software are emphasized. Topics will be drawn from: 1) models of multiple equations, 2) models of limited dependent variables, 3) elements of time-series analysis and models for macro and financial data.

#### ECO 680 Applied Financial Econometrics (7.5 ECTS)

Financial time series and their characteristics; Conditional heteroskedastic models; Nonlinear models and their applications; Continuous-time models and their applications; Risk management, extreme values, quantile estimation and value at risk; Estimation and tests of asset pricing models, Multivariate volatility models; High-frequency data analysis and market microstructure.

## **Research Interests of the Academic Staff**

#### Elena Andreou

#### Associate Professor

Financial econometrics with emphasis on volatility models, change-point tests, high-frequency financial data modelling, empirical asset pricing, market microstructure models, foreign exchange factor models, risk management methods, rank statistics, residual-based tests, sequential analysis, simulation methods, unit roots tests and forecasting.

#### Andri Chassamboulli

#### Lecturer

Macroeconomics, Labour Economics, Industrial Organisation, Growth.

#### Louis Christofides

Professor

Labour Economics, Macroeconomics, Applied Econometrics.

#### Paris Cleanthous

#### Lecturer

Industrial Organisation, Applied Microeconomics, Health Economics.

#### Sofronis Clerides

#### Associate Professor

Industrial organisation, applied microeconomics and international trade.

Specific topics of interest: pricing, quality choice and product differentiation; competition and antitrust; competition in international markets; the determinants of exporting activity and productivity gains from exporting.

#### • Panayiota Flori – Lyssiotou

#### Associate Professor

Interhousehold and intrahousehold behavior, empirical consumer demands analysis, static and dynamic demand systems, adult equivalence scales, consumer price indices, welfare measures, indirect tax reform and distributional effects, household consumption and saving behavior.

#### Costas Hadjiyiannis

#### Assistant Professor

International Trade, Game Theory, Industrial Organisation, Microeconomics.

#### Christis Hassapis

#### Associate Professor

Macroeconomics and International Finance, with special emphasis on portfolio choice and stockholding behaviour. More specifically portfolio choice under liquidity constraints; saving and stockholding behaviour; interest rate determination and forecasting.

#### Ioannis Kasparis

Assistant Professor

Econometrics, Time series Econometrics.

## Andros Kourtellos

#### Assistant Professor

Econometrics, Economic Growth, Social Interactions, Resampling Methods, Hierarchical Models, Varying Coefficient Models, Projection Pursuit Regression, Semiparametric Models.

## Theofanis P. Mamuneas Professor

#### Protess

Applied Microeconomics and Econometrics and Public Economics; Infrastructures, R&D Spillovers and Productivity; Growth.

#### Michael S. Michael

#### Professor

International Trade; Theory and Policy, Economics of Integration, International Factor Mobility, Optimal commercial Policies with Variable Factor Supplies and under Various Forms of Trade Restrictions, Trade and Factor Tax Policies with Public Goods Provision, Indirect Tax Reforms, Economics of Foreign Aid, Migration, Trade and Environment and Cyprus-European Union Economic Relations, especially regarding Agriculture.

## Panos Pashardes

#### Professor

Consumer Demand Analysis, Equivalence Scales, Dynamic Demand Systems, Applied Econometrics.

#### Christoforos Pissarides

#### Professor

Macroeconomics, Especially Search Theory, Unemployment, Growth and Structural Change.

#### Nicos Theodoropoulos

#### Lecturer

Labour Economics, Econometrics.

#### • Marios A. Zachariadis

#### Associate Professor

Economic Growth, International Finance, Macroeconomics.

#### Nicos Ziros

#### Lecturer

Microeconomics, Mathematical Economics, General Equilibrium Theory, Game Theory.

## **Contact Details**

## **Department Secretariat**

Anastasia Demetriou Maria Kanari Litsia Taliadorou Tel.: 22893700/01/02 Fax: 22895028 e-mail: dept.econ@ucy.ac.cy

http://www.ucy.ac.cy/econ-en

## ECONOMICS RESEARCH CENTRE

## **Mission**

The Economics Research Centre of the University of Cyprus (ERC) is an independent nonprofit research institution dedicated to high quality policy oriented research in economics. While emphasis is placed on subjects concerning the Cyprus economy, research at ERC has a broad perspective and aims at results of high academic standard with wide international interest.

The modern economy is said to be 'the economy of knowledge and information' to emphasize the importance of investment in human capital for economic growth and prosperity. This relates to globalization and deregulation and the resulting increase in the intensity of competition in international and local markets. European orientation is leading the Cyprus economy to this increased competition and this renders economic research a high priority.

The ERC studies issues of the Cyprus economy on a continuous basis. It aims to encourage economists of high caliber to become involved in research on subjects of interest to the Cyprus economy. It also aims to serve as a channel for directing local and European research funds to economic research. Among the objectives of the ERC are to study topics of wider economic interest and publish articles in international academic journals.

In conclusion, the ERC aims to fill the gap resulting from the absence of adequate economic research in Cyprus and aspires to make a distinct contribution to the prosperity of the Cypriot people.

## **Research Activities**

The ERC has the required research infrastructure (suitably trained researchers, computer software and hardware, constantly updated databases, etc.) to respond in a timely and effective manner to research needs in a rapidly changing economy. The Centre also benefits from the expertise offered by established academics in Cyprus and abroad participating in the research effort as Research Associates and Fellows. The research activities at the ERC are divided into five areas:

## **Public Sector**

Research in the Public Sector examines all aspects of public economics, with a focus on fiscal policy and the wider role

of government in the economy. Current research interests at ERC focus on tax evasion, public assistance and the economic valuation of state education in Cyprus.

## **Corporate Sector**

The Corporate Sector investigates the factors that affect productivity and produces productivity indices for the Cyprus economy. The Sector also conducts specialised research projects that relate to sectors of economic activity such as the analysis of the housing market.

## **Household Sector**

The Household Sector studies the behavioural and welfare aspects of household economics. Targeted public assistance, inequality and poverty as well as household borrowing are at the centre of the sector's research agenda.

## **Forecasting Sector**

The Sector focuses on the analysis of Business and Consumer Survey data, which records business executives' and consumers' perceptions of current economic conditions and expectations regarding the evolution of economic variables. A further objective of the Sector is the development of models for forecasting various indicators of the Cyprus economy. The forecasts will help both policy makers to implement appropriate economic policy, and firms to plan their activities.

#### **Other Research Projects**

This sector undertakes research on specialised topics. At present research in this sector focuses on energy policy and planning, the impact of foreign direct investment on sectors of the economy and tourism economics.

## Operation

The ERC operates as an autonomous unit in the Economics Department of the University of Cyprus. Its Director is elected from among the senior staff of the Economics Department and has overall responsibility for administration and research supervision.

The ERC is managed by the Academic Council and the Advisory Council.

The Academic Council oversees the organisation and execution of research and consists of the project coordinators and the research fellows of ERC. The Advisory Council has funding responsibilities and advises the Director of the ERC on selecting research topics of interest to Cyprus. It has an institutional membership representing public and private economic research interests.

## Director

Professor Panos Pashardes

## **Contact Details**

**Secretary** Angela Shekersavva Tel: 22893660 Fax: 22895027 e-mail: erc@ucy.ac.cy

http://www.ucy.ac.cy/erc-en

# **Public and Business Administration**

The Department of Public and Business Administration intends to offer an integrated programme of postgraduate studies that will emphasize both breadth of understanding of the business environment, as well as depth in several functional areas. Based on the latest curricula of prominent European and North American academic institutions, it integrates internationally accepted management principles with sensitivity to the realities and priorities of the local and regional industries.

The Master in Finance focuses on the use of powerful analytical and financial tools and the latest information technology for the support of the tactical and strategic goals of an enterprise.

The Master in Business Administration (MBA) is looking to take on board individuals with promising leadership potential and excellent academic credentials, who will share knowledge and ideas, actively contribute to the programme and shape the future of business practice.



## Introduction

The modern business environment is being transformed. Markets are becoming global and intensely competitive, organisations are merging, and regulatory barriers are falling. Information technology creates a virtual business environment where services are rendered, transactions take place, and deals are concluded more efficiently. The 1980's and 1990's have witnessed the transformation of the industrialized nations from manufacturers of goods to producers of services. Many advanced developing countries are closely following this lead, while other developing countries are gradually filling the gap in the manufacturing processes.

The only constant in today's environment is change itself. The astute managers who anticipate, comprehend, adapt and even proact in a timely fashion in this dynamic environment will lead their enterprises to success. Those who are unable to cope with change face real threats to the survival of their organisation. The adage "lead, follow or get out of the way" becomes particularly relevant for the managers of the 2000's and beyond.

The Department of Public and Business Administration (PBA) aims to produce managers who will lead their enterprises and organisations through these exciting times. It intends to offer an integrated programme of postgraduate studies that will emphasize both breadth of understanding of the business environment, as well as depth in several functional areas. Based on the latest curricula of prominent European and North American academic institutions, it integrates internationally accepted management principles with sensitivity to the realities and priorities of the local and regional industries. The Master in Finance focuses on the use of powerful analytical and financial tools and the latest information technology for the support of the tactical and strategic goals of an enterprise.

The Master in Business Administration (MBA) is looking to take on board individuals with promising leadership potential and excellent academic credentials, who will share knowledge and ideas, actively contribute to the programme, and shape the future of business practice.

## **Goals of the Department**

The Department's goal is to provide local and regional leadership in all aspects of Public and Business

Administration, and to achieve international recognition as a centre of excellence in business education and research.

## **Research Mission**

The faculty of the Department is committed to state-ofthe-art research of local and international impact. The faculty members maintain close contacts with researchers at prominent universities in Europe and North America. The research interests of the faculty are many and diverse.

Research in **Finance** covers several diverse aspects of financial management. Models for capital investment analysis and portfolio management in the face of uncertain or volatile market conditions are of central interest to our faculty. Studies range from global asset/liability management using complex interest rate contingent claims models, to stock market volatility, to the pricing of capital investment opportunities with embedded options, and synthetic securities. Information technology is viewed both as an asset used in the context of planning purposes and as a means for achieving the strategic goals of the financial manager.

Research in **Accounting** explores the use of accounting data to support the decision-making processes of managers, investors, bankers and manufacturers alike. Investment decisions of organisations, such as oil and gas companies or public utility services, are greatly affected by the expected cash flows to be generated by the organisation from both operating and financing activities. Projections of future cash flows, as well as budgeting, management control and cost analysis can help substantially the planning of future investment decisions. Such information can be obtained from the analysis of accounting data. Current projects in the Department involve the analysis of both local industries and broader industrial sectors in an international setting.

Research in **Marketing / Management** covers various conceptual, methodological, and empirical issues evolving around the internationalization process of the firm, export stimulation and obstruction and organisational and managerial effects on the firm's export behavior, the exporter-importer working relationship, distribution channels behavior, philosophical and epistemological aspects of organisational theory, post-rationalist approaches to organisation design, the management of social reforms, interrelationships among behavioral constructs, environmental management, diffusion of innovations, family enterprises, and human resources development.

Research in **Management Science** has both methodological and problem-oriented goals. On the methodological side, there are ongoing projects on the development of largescale computing techniques for the solution of problems in optimization, production and operations planning, logistics and distribution. Particular emphasis is placed on the solution of models for financial planning under uncertainty. Novel computing technologies, such as parallel and supercomputer architectures, are used for the solution of business problems. Research is also conducted in such areas as service quality, efficiency and effectiveness of financial and banking institutions, and applications of neural networks in business problems.

The faculty maintain close contacts with researchers at prominent universities in Europe, North America, and the region. Formal research collaborations are ongoing with faculties at Harvard University, University of Chicago, Columbia University, UCLA, the Wharton School of the University of Pennsylvania, the University of Southern California, University of Kansas, and the George Washington University in the United States, the Universities of Bocconi, Bergamo, and Calabria in Italy, the University of Vienna in Austria, the Erasmus University in the Netherlands, the London Business School and the Imperial College in the United Kingdom, the University of Toronto in Canada, and others. Projects by Department faculty have attracted more than two million U.S. dollars from external sources including Digital Equipment International, the Bank of Cyprus and other Cypriot banks, the Mediterranean Campus Programme of the European Union, other European Union Agencies and the Cyprus **Research Promotion Foundation.** 

The goals of the Department include international research on the Cyprus financial and banking system with emphasis on a holistic analysis of the system rather than short-term operational problems of specific organisations. At present, research focuses on issues of risk assessment and management under interest rate uncertainty, financial markets analysis, management of banking information systems, improved accounting methods for debt management according to European Union standards, assessment of functional productivity and profitability of

bank branches, and the use of Artificial Intelligence in the pricing of derivative products.

The HERMES Centre on Computational Finance and Economics was established in 1993 and has been subsidized by the European Commission since 2000 as a Centre of Excellence. The cornerstones of the disciplinary approaches of the Centre's research are: theoretical modelling, empirical data-driven research and the use of computations to support financial decision making. The Centre for Banking and Financial Research is a continuation of HERMES.

Every two years, the Department organises an academic conference on "Capital Markets Research." It has also organised or co-organised with other prominent universities international conferences in Cyprus, such as the Annual Meeting of the Multinational Finance Society, Annual International Conference on Real Options, CRANET Conference on Human Resource Management, Meetings of the Euro Working Group on Financial Modelling, Applied Mathematical Programming and Modelling, Computational Statistics & Data Analysis.

## Study and Research Facilities for Students

Students have access to the Computer laboratories of the University for their homework assignments and research projects. A modern microcomputer laboratory has recently been established for the students of the Faculty of Economics and Management. Lectures are often supplemented with the use of software and related databases.

The University library receives all major European and North American journals and business magazines and books and is continually enriched. In addition, the library maintains databases with international financial and accounting information such as Datastream, Compustat, Global Vantage, CRSP, IBES, and the Wall Street Journal Index, which students can use for their research projects.

## Postgraduate Programmes

The Department of Public and Business Administration intends to offer a complete range of postgraduate programmes at the Master (M.Sc.) and Doctoral (Ph.D.) level in all major business disciplines. At present, the Department offers the M.Sc. programme in Finance, and, jointly with the Department of Economics, the M.Sc. in Financial Economics, while other Master, executive and Ph.D. programmes are being developed. Students can already be admitted to the Ph.D. programme with a Finance, Accounting, or Management Science concentration.

The Department of Public and Business Administration also offers the following two graduate programmes in Business Administration:

- The Master of Business Administration (MBA) Programme (full-time study)
- The Professional Master of Business Administration (PMBA) Programme (part-time study)

The MBA Programme is a one-year, full-time programme geared towards individuals who are committed to developing their management skills and decision-making abilities in a fast-changing business environment.

The Professional MBA Programme is a two-year, evening programme that meets the needs of professionals who are currently working and wish to enhance their leadership abilities and effectiveness in their organisations, and acquire the tools for further professional development.

The international CEO Magazine (Spring 2010) included the UCY MBA programme in its top Executive MBA programme Rankings in Europe.

Separate programmes for both the MBA and the Professional MBA are offered in Greek and English. When applying to the programme, candidates must declare their preference regarding the language of instruction. For more information, please visit www.mba.ucy.ac.cy.

## Admission Criteria for the MBA Programmes (full and part time)

- Degree from a recognized academic institution or equivalent
- Three years of full-time work experience and superior academic performance
- GMAT or GRE exams will be considered as an additional qualification
- Proficiency in English must be demonstrated (for canditates who apply for the programme in english) through one of the following: TOEFL, IELTS, GCE or equivalent, unless the applicants hold a degree from an English-speaking institution

- Two recommendation letters from faculty members of Higher Education Institutions or people who are familiar with the work of the candidate
- Personal interview to assess the applicant's contribution potential to the programme

## Admittance Criteria for the other Postgraduate Programmes

Students must have completed a Bachelor Degree (or should be expecting to complete one by the start of the Master) with a general grade at least 'B'. A Master Degree will be considered as an additional credential, and could lead to a limited number of course waivers. The applicants must know the English language at a satisfactory level. For example, they should have at least a 'B' in the GCE O'Level in English language, or at least 600 in the TOEFL. In addition, it is preferable that they have a minimum of 600 in the GMAT, or 700 in the math section of the GRE.

## **M.Sc. PROGRAMME IN FINANCE**

For the M.Sc. Programme in Finance, at least 90 units (ECTS) must be completed. The analytical programme per semester is shown on the following table:

	ECTS	
First Year		
Fall Semester	30	
PBA 515 Basic Accounting	2	
PBA 521 Financial Theory	7	
PBA 522 Investments	7	
PBA 525 Options and Futures	7	
PBA 526 Financial Analysis and Capital Market Research	7	
Spring Semester	30	
Eighteen (18) ECTS from the following list of courses:*		
PBA 520 Managerial Economics or another suitable in-depth course	6	
PBA 523 Advanced Quantitative Business Methods	6	
PBA 528 Advanced Capital Budgeting	6	
At least twelve (12) ECTS from the following list of courses:		
PBA 524 Financial Modelling	6	
PBA 527 Theory and Methodology in Finance and Accounting	6	
PBA 529 Applications of Neural Networks in Business	6	
PBA 530 Seminar on the Cyprus Economy, Banking and Financial Markets	6	
PBA 531 International Financial Management	6	

PBA 532 Financial Optimization and Decision Analysis	6
PBA 533 Bank Financial Management	6
PBA 534 Financial Risk Management	6
PBA 535 Seminar on the Theory of Derivatives	6
PBA 536 Business Valuation	6
PBA 537 Theoretical Topics in Finance	6
PBA 538 Applied Topics in Finance	6
Other electives / in-depth courses**	
Second Year	
Fall Semester	
Other elective/in-depth course**	6
Thesis	24
Note:	
* Maximum waiver of one course may be granted according to the student's prior experience.	2
** Elective courses are subject to approval by the Director of Postgraduate Studies. Courses are offered with at least four pre-registered students.	

During the third semester of the M.Sc. programme, students must complete a 24 ECTS thesis.

Details about the writing of the thesis are outlined in the *Admission and Attendance Regulations – Application Requirements* on page 16. For more information, students may also consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## **M.Sc. PROGRAMME IN FINANCIAL ECONOMICS**

The M.Sc. Programme in Financial Economics is offered jointly with the Department of Economics. It requires the completion of at least 90 units (ECTS) from the following courses: PBA 521, 522, 525, 526, 528 and 542, ECON 601, 602, 603, 653, and 680; and a thesis. More details can be found on the webpage of the Department.

## THE PROFESSIONAL MBA PROGRAMME

The Professional MBA Programme is a two-year, evening programme that meets the needs of professionals who are currently working and wish to enhance their leadership abilities and effectiveness in their organisations, and acquire the tools for further professional development.

To graduate, students must complete a total of 90 ECTS units. A total of 51 ECTS units constitute the core curriculum, the intent of which is to introduce students to the fundamentals of the business disciplines. Students can

customize their programme according to their professional needs and interests through elective courses (maximum 18 ECTS units). A list of courses is available from the Department. Finally, the Applied Business Project (21 ECTS units) focuses on a real-life case within a corporate or government environment, and brings together teams of students with sponsor companies.

## Structure of the Professional MBA Programme

	ECIS
First Year	
Preparation period (August)	
MBA 501 Business Computer Fundamentals*	1
MBA 502 Introduction to Accounting*	1
MBA 503 Business Mathematics and Statistics*	1
September - October	
MBA 531 Business Economics	3.5
MBA 561 Leading and Managing Organisations	4
November - December	
MBA 511 Financial Accounting and Reporting	4
MBA 544 Business Statistics	3.5
January - February	
MBA 521 Financial Management	4
MBA 542 Managing Operations	3.5
March - April	
MBA 541 Methods for Management Decisions	3.5
MBA 551 Marketing Management	4
May - June	
MBA 512 Managerial Accounting	3.5
MBA 522 Capital Markets and Investments	4
Second Year	
September - October	
MBA 564 Strategic Management	4
MBA 562 Corporate Social Responsibility and Ethics	2
MBA 574 Principles of Business Communication	2
November - December	
MBA 543 Managing Information Systems	2
MBA 563 Entrepreneurship	4
January - February	
Elective Courses	6
March - April	
Elective Course	8

#### May - August MBA 590 Applied Business Project I Elective Course

 Total
 90

 \* Note: Optional courses of 1 ECTS are over and above the 90 ECTS required for programme completion.

21

4

ECTC

## THE MBA PROGRAMME

The duration of the programme is twelve months and in order to graduate, students must complete a total of at least 90 ECTS units.

Courses equivalent to 51 ECTS units constitute the core curriculum, which will introduce students to all areas of business administration. The courses also enable students to improve their analytical thinking and decision-making skills. The core courses are offered during the first four terms.

Programme participants must choose elective courses equivalent to 18 ECTS from a list of courses available from the Department, which covers all fields of business administration. The elective courses are offered during terms four to six.

The Applied Business Project (21 ECTS) takes place during the last three Terms, and enables students to apply the knowledge acquired during the programme to an organisation. The Applied Business Project reflects one of the central themes of the programme which is teamwork. The complexity of the business environment forces managers to seek the integration of knowledge through collaboration.

## **The MBA Programme Structure**

	LCIS		
Preparation period (August)			
MBA 501 Business Computer Fundamentals*	1		
MBA 502 Introduction to Accounting*	1		
MBA 503 Business Mathematics and Statistics*	1		
September-October	September-October		
MBA 531 Business Economics	3.5		
MBA 544 Business Statistics	3.5		
MBA 561 Leading and Managing Organisations	4		
November-December			
MBA 511 Financial Accounting and Reporting			
for Management Decisions	4		
MBA 521 Financial Management	4		

MBA 542 Managing Operations	3.5
MBA 551 Marketing Management	4
MBA 574 Principles of Business Communication	2
January-February	
MBA 512 Managerial Accounting	3.5
MBA 541 Methods for Management Decisions	3.5
MBA 543 Managing Information Systems	2
MBA 562 Corporate Social Responsibility and Ethics	2
MBA 563 Entrepreneurship	4
March-April	
MBA 522 Capital Markets and Investments	4
MBA 564 Strategic Management	3.5
Elective Courses	6
May-August	
MBA 590 Applied Business Project	21
Elective Courses	12
Total	90
* Note: Optional courses of 1 ECTS which are over and above the required for programme completion.	90 ECTS

## Elective Courses for the MBA and Professional MBA Programmes

	ECIS
Accounting	
MBA 513 Financial Analysis and Capital Markets	4
MBA 514 Business Law	2
MBA 515 Taxation	2
Finance	
MBA 523 Options	4
MBA 524 Bank Financial Management	4
MBA 525 International Finance	4
MBA 526 Strategic Capital Budgeting	4
MBA 527 Risk Management	4
MBA 528 Mergers and Acquisitions	2
MBA 529 Real Estate Investments and Management	4
MBA 532 The European Economy	2
MBA 533 Current Topics in Global Economics and Finance	2 2
Operations Management	
MBA 545 Service Management	4
MBA 546 Supply Chain Management	4
MBA 547 Quality Management	4
MBA 548 E-Commerce	4
MBA 549 Project Management	2
Marketing	
MBA 552 Marketing Research	4

MBA 553 Strategic Marketing	4
MBA 554 International Marketing	4
MBA 555 Marketing Communications	4
MBA 556 New Product Development	2
MBA 557 Sales Management	2
MBA 558 Consumer Behavior	2
Management	
MBA 565 Human Resource Management	4
MBA 566 Leadership	4
MBA 567 Managing Change	2
MBA 568 Negotiations	2
MBA 569 Crisis Management	2
MBA 570 Management of Innovation	2
MBA 571 Innovation Strategy	2
MBA 573 Emotional Intelligence	2
MBA 575 Current Topics in Public Administration	4

## **The Doctoral Programmes**

At present, the doctoral programme offers specializations in Finance, Accounting, and Management Science. The following refers primarily to the programme in Finance.

## DOCTORAL PROGRAMME IN FINANCE

Students are expected to complete at least 90 ECTS of coursework for the completion of the doctoral programme.

Admittance to Doctoral Candidacy requires:

- Completion of coursework
- Successful completion of the comprehensive exams
- Preparation of a research study

Doctoral students are expected to complete the above requirements by the end of the fifth semester. Under special circumstances, the Departmental Board may approve extension to the end of the sixth semester.

For more information on the Admission and Attendance Regulations – Application Requirements, see page 16 or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## Coursework

Doctoral students must take at least 28 ECTS of required coursework, at least 24 ECTS of methodology courses, and

at least 38 ECTS of electives. The first two semesters of the doctoral programme are similar to those of the M.Sc. programme, as described earlier.

## A. Required Courses (28 ECTS)

PBA 521 Financial Theory PBA 522 Investments PBA 525 Futures and Options PBA 526 Financial Analysis and Capital Markets Research

## **B. Methodology Courses (at least 24 ECTS)**

#### **Two Econometrics Courses:**

ECON 603 Statistics and Econometrics I ECON 653 Statistics and Econometrics II

#### **Probability Theory**

Graduate MAS 650 Probability Theory I or the two undergraduate MAS 151 Probability-Statistics I and MAS 252 Probability-Statistics II (MAS 252 can be replaced by one graduate econometrics course).

## **Stochastic Processes**

A graduate Stochastic processes course (or the undergraduate MAS 252 Stochastic Processes).

It is also expected that all students will have sufficient knowledge of computer programming (like C/C++, Matlab, SAS, SPSS). Holders of a Master degree in a field similar to the doctoral programme may waive some coursework with the approval of the Department Council. It is expected that all doctoral students (according to their previous graduate studies) complete a minimum of 30-42 ECTS in coursework at the University of Cyprus.

## **Pre-Dissertation Research**

During the first summer of studies, students are expected to prepare a research project under the supervision of a faculty advisor. Students must complete the project by the third semester of studies and submit it for approval to a three-member faculty committee.

## **Comprehensive Examination**

The comprehensive examination (taken at the latest by the end of the fifth semester in the doctoral programme) must cover the areas:

- · Major field of study
- Methodology

In line with international practice, this requirement is fulfilled by three-hour exams in each of the following topics:

- Financial Theory and Investments
- Financial Analysis and Capital Market Research
- Futures and Options
- Econometrics

## Doctoral Candidacy and Dissertation Requirements

After formal entrance in doctoral candidacy, students are expected to concentrate their efforts on their dissertation research, which will initially result in a dissertation proposal in coordination with their Research Advisor.

## **The Dissertation Proposal**

The dissertation proposal must be defended before a three-member academic committee. The proposal should contain a complete and detailed definition of the problem under investigation, a comprehensive synopsis of the relevant literature and the unanswered research questions, and should provide the relation between the existing literature and the proposed research as well as the expected new contribution.

## **The Dissertation**

The completed dissertation must be original research with significant contribution to the academic literature. The dissertation must be defended before a five-member academic committee, appointed by the Committee of Postgraduate Studies in coordination with the Research Advisor.

For more information about the pre-dissertation research, the comprehensive examination, the doctoral candidacy and dissertation requirements, the dissertation proposal and the dissertation, students may consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## **Doctoral Candidate's Requirements**

Doctoral students must take the Seminar Series (Colloquium) at least twice (PBA 541 and PBA 542). While students take the comprehensive examination, they may register for PBA 890 (15 ECTS). While the doctoral candidates work on the dissertation research, they must complete at least 120 ECTS in four research courses: (PBA 895: 30 ECTS, PBA 896: 30 ECTS, PBA 897: 30 ECTS, and PBA 898: 30 ECTS). There are also the partial research courses

PBA 881, PBA 882, PBA 883, PBA 884, PBA 885, PBA 886, PBA 887, and PBA 888 (15 ECTS each) for students who elect to take courses (beyond those required) during the dissertation stages, or PBA 890 (comprehensive exams) during the first enrollment in a dissertation stage. If after the completion of 120 ECTS of dissertation courses the doctoral dissertation is not completed, students may enroll in writing courses of 30 ECTS (PBA 791, PBA 792, PBA 793, PBA 794) or 15 ECTS (PBA 781, PBA 782, PBA 783, PBA 784, PBA 785, PBA 786, PBA 787, PBA 788).

## **Sample Programme**

	ECTS
First Year	
Fall Semester Same as for the Master	30
Spring Semester	
Same as for the Master	30
Second Year	
Fall Semester	
Elective/in-depth and methodology courses	
(from the department, econometrics, mathematics, etc.)	30
Spring Semester	30
PBA 890 Comprehensive Examinations	15
PBA 881 Research stage	15
Third Year	
Fall Semester	30
PBA 882 Research stage	15
PBA 883 Research stage	15
Spring Semester	30
PBA 884 Research stage	15
PBA 885 Research stage	15
Fourth Year	
Fall Semester	30
PBA 886 Research stage	15
PBA 887 Research stage	15
Spring Semester	30
PBA 888 Research stage	15
PBA 781 Writing stage	15

## Postgraduate Finance Course Descriptions

## PBA 515 Basic Accounting (2 ECTS)

The scope of the course is to examine the use of accounting in a business environment. It covers topics on the accounting cycle of the enterprise, preparation and presentation of the three basic financial statements. It is graded with Pass/Fail.

## PBA 516 Use of Software in Finance (3 ECTS)

Databases and software packages useful to the financial manager/analyst of a private or public enterprise/organisation are introduced. The course is directed towards new Master students. It covers databases (like Compustat/GlobalVantage, Datastream, CRSP, IDES), and software (like Matlab). It is graded with Pass/Fail.

## PBA 520 Managerial Economics (6 ECTS)

The course covers a wide variety of topics to facilitate understanding of the wider economic environment of the corporation, from the perspective of the Neoclassical Economic Theory, the Theory of the Firm, and Industrial Organisation. Topics include the Utility Theory, Indifference Curves, Income and Substitution Effects, Demand Functions and Price Elasticity of Demand, Cross Elasticity and Income Elasticity, Production Functions and Cost Functions, Returns to Scale and Returns to Scope, General Equilibrium, Pareto Efficiency, basic principles of Industrial Organisation, elements of Game Theory, Trigger Pricing strategies, etc.

## PBA 521 Financial Theory (7 ECTS)

The course presents the theory of Finance Decisions and Corporate Policy. It covers contemporary methods of Capital Budgeting, Utility Theory, Risk and Uncertainty, Mean-Variance Choice, Capital Asset Pricing Models (like CAPM and Zero Beta CAPM), Roll's Critique, and the Arbitrage Pricing Theory (APT), an introduction to Option Pricing with implications for Corporate Policy, the Efficient Markets Hypothesis, Capital Structure and Dividend Policy, Corporate Restructuring, M&As, etc.

## PBA 522 Investments (7 ECTS)

The course covers the basic principles of investment analysis and valuation. That is, how to price Financial Securities (such as Bonds, Stocks, Options, and Futures contracts) and how to determine which are undervalued. The emphasis is on Security Analysis and Portfolio Management in a risk-return framework. Security analysis is the attempt to determine whether an individual security is correctly valued in the market (i.e., it is the search for mispriced securities). Portfolio management is the process of efficiently combining securities into a portfolio tailored to the investor's preferences and needs, monitoring that portfolio, and evaluating its performance. The course covers the theory of investments, and provides knowledge of practical importance to anyone interested in becoming an investment professional or a sophisticated private investor.

#### PBA 523 Advanced Quantitative Business Methods (6 ECTS)

The course introduces business students to various statistical topics useful in Business, such as Linear Regression, Probit and Logit, Discriminant analysis, Factor analysis, and Structural Equation modelling. In addition to the theoretical coverage of these topics, students practice with practical applications in business (Finance, Accounting, Management Science, etc.) and use software like SPSS and SAS. During the course students are required to complete a final project, in which they perform a statistical analysis with real data.

#### PBA 524 Financial Modelling (6 ECTS)

The course covers financial models for Hedging and Risk Management, Asset Allocation, Multi-period Portfolio Planning, Option Pricing, Swaps, and Bonds and Mortgagebacked Securities. Emphasis is on the use of Statistics, Optimization, and Simulation for the solution of Financial Planning problems, with wide implementation of spreadsheets and high-level modelling languages (like GAMS), and spreadsheets.

#### PBA 525 Options and Futures (7 ECTS)

The course studies the pricing and use of Derivative Securities (e.g., Options, Forward/futures contracts, Fixed-income Derivatives and Corporate Liabilities), i.e., financial instruments whose value depends on the price of other basic underlying variables (such as stock prices, indices, foreign currencies, or interest rates). The no-arbitrage pricing principle and its use in pricing forward and futures contracts and in deriving option pricing restrictions are first developed together with the Binomial-tree valuation approach and the Black-Scholes option-pricing model. Then, various extensions of the theoretical option models (adjusted for dividends and early exercise) are presented and various applications are provided, in (1) the pricing of options on Stock Indices, Currencies, and Futures; (2) Risk Management (e.g., hedging stock market, foreign currency and interest-rate risk exposure); (3) the pricing of options embedded in Corporate Securities (e.g., equity as an option on firm value, Callable Bonds, Warrants and Convertible Bonds); (4) the pricing of Fixed-income (interest-rate) derivatives (introduction only); and (5) the valuation of options embedded in real investment decisions.

#### PBA 526 Financial Analysis and Capital Market Research (7 ECTS)

The major objective of this course is to present a comprehensive analysis of financial information as an aid to decision making. While financial analysis serves many and varied purposes, its major usefulness is in making investing, lending and managerial decisions. Valid and competently assembled data may lead to good decisions; incomplete or distorted data will usually lead to bad decisions. Investing and lending decisions require the application of thorough analysis to carefully evaluated data. They require, moreover, the ability to forecast, to foresee. Sound information is obtained by an understanding of the data from which it is derived as well as by the application. Foresight, which is essential to the assessment of opportunity and risk, is also rooted in understanding: understanding of the elements comprising the data and the

factors that can change them. The emphasis of this course is on: i) business analysis tools such as business strategy analysis, accounting and financial analysis, prospective analysis, i.e., forecasting and valuation; ii) applications, i.e., credit analysis and bankruptcy prediction, security analysis, corporate financing issues such as dividend policy and capital structure, mergers and acquisitions, and management communication; iii) international financial analysis; iv) contemporary issues in financial analysis. Special emphasis will also be placed on contemporary financial analysis issues that affect the Cyprus Stock Exchange and International Stock Exchanges.

#### PBA 527 Theory and Methodology in Finance and Accounting (6 ECTS)

The course covers contemporary methodologies for empirical research in Finance and Accounting. Through the study and analysis of contemporary research, it highlights the role of financial and other information in setting equity prices. In addition, it covers topics such as: the role of Financial Analysts in Equity Markets, the relation between Accounting Rules and Equity Markets, the effect of Income Manipulation on Investors and Managers, and the Measurement of Risk.

#### PBA 528 Advanced Methods of Capital Budgeting (6 ECTS)

The course initially covers the traditional methods of Capital Budgeting and their deficiencies. Then it focuses on issues of Investment Valuation with Flexibility and Optimal Exercise of Embedded Options for optimal organisational decisions under uncertainty and constant change. It places emphasis on the use of the Real Options methodology in both tactical and strategic decisions. The Stochastic Processes that describe uncertainty are introduced, and the real options methodology is applied through the use of Monte Carlo Simulation, Lattice methods, and other analytic and numerical solution techniques.

#### PBA 529 Applications of Neural Networks to Business (6 ECTS)

This course covers a broad treatment of the subject of Artificial Neural Networks. The material includes: Introduction to neural networks, the Backpropagation training algorithm and its variants, the RBF training algorithm, probabilistic neural networks, Kohonen's SOFM, LVQ's training algorithms, support vector machines. The wide applicability of the material developed in this course is demonstrated through applications to a number of problems drawn from various business areas. Students practice the theory through a research project in Finance or Accounting.

#### PBA 530 Seminar on the Economy, the Banking System and the Financial Markets of Cyprus (6 ECTS)

In the seminar a wide range of topics relating to the Economy, the Banking System, and the Financial Markets of Cyprus are analyzed from the perspective of two significant events currently under development: the Globalization of Economies and International Markets, and the accession of Cyprus into the European Union. These developments prescribe the prospects and challenges of the economy and the financial system of Cyprus.

#### PBA 531 International Financial Management (6 ECTS)

Managing an international business or a business exposed to global competition requires the understanding of international financial instruments, markets, and institutions. The topics covered include: globalization and the multinational firm; international monetary system, the market for foreign exchange, international parity relationships and forecasting foreign exchange rates; international capital markets, including bond and equity markets; futures, options and swaps on foreign exchange and interest rates; managing and hedging foreign exchange and interest rate risk; international portfolio investments; global mutual funds and hedge funds; emerging market finance; capital market integration and liberalization, and the financial and real effects of market integration; financial crises and contagion.

#### PBA 532 Financial Optimization and Decision Analysis (6 ECTS)

The course covers topics of Mathematical Programming and Financial Optimization and Decision Theory that constitute basic research tools in Finance and Economics. From the perspective of theory and model building, it covers Linear Programming, Duality Theory, Unconstrained and Constrained Non-linear Programming, Stochastic Programming, and Largescale Programming. Special emphasis is placed on the solution of problems with the use of computers.

#### PBA 533 Bank Financial Management (6 ECTS)

The continuously changing environment - increased competition, liberalization, globalization of markets, new capital market products - demands that banks revise their traditional financial management. The course presents financial principles, strategies, and techniques that help banks succeed in this financial environment. After the study of the existing banking environment, bank structure and problems, the course concentrates on the measurement and management of interest rate, credit, and currency risks. The course also studies the measurement and evaluation of bank performance, basic instruments and techniques, asset/liability management, new financial strategies, and integrated decisions for bank management.

#### PBA 534 Financial Risk Management (6 ECTS)

The aim of this course is to illustrate the use of financial theory and applied statistics in measuring and managing risks that multinational corporations and financial institutions are currently facing. It will discuss: Basel I & II, volatility and valueat-risk, coherent risk measures; simulation of Profit & Loss distributions using Gaussian assumption for equity portfolios and bonds, market risk capital adequacy, linear and non-linear risks; time-varying volatility of market-risk factors, EWMA and GARCH process; extreme financial risks with non-Gaussian distributions, extreme value models; credit risk and rating systems; probability of default, recovery rates, credit risk capital adequacy; methods of Credit Metrics (JP Morgan), distance to default - KMV (Moody's), actuarial approach (Credit Suisse First Boston); types of operational risk, measurements using Loss Distribution Approach, capital adequacy; mitigating and managing financial risks, capital for unexpected losses, risk transfer/hedging.

#### PBA 535 Seminar on Derivatives (6 ECTS)

The course covers advanced topics in financial theory with emphasis on contemporary theories of contingent claims pricing, continuous time finance, alternative stochastic processes (geometric Brownian motion, Poisson processes and jump-diffusion, stochastic volatility, stochastic interest rates); numerical methods for option pricing problems with high dimensionality, alternative stochastic process assumptions, and path-dependencies; pricing options on foreign assets with currency risk, Guaranteed Investment Contracts with embedded options; option replication without and with transaction costs.

#### PBA 536 Business Valuation (6 ECTS)

The scope of the course is to cover the foundations of the different approaches and methodologies of business valuation. The material covered will include: the Income Approach; the Market Approach; the Asset-based Approach; the Real Options Approach; the needed research in business and industry data; Financial Statement Analysis & Ratio Analysis; Control and Acquisition Premium; Lack of Control Discounts, Illiquidity and Lack of Marketability Discounts; valuation of Partnerships and Limited Liability Companies; valuation of Intangible Assets.

#### PBA 537 Theoretical Topics in Finance (6 ECTS)

The course covers advanced theoretical topics in financial theory. Contents may differ according to the instructor.

#### PBA 538 Applied Topics in Finance (6 ECTS)

The course covers special and applied topics in finance. Contents may differ according to the instructor.

#### PBA 541-546 Seminar Series - Colloquium (3 ECTS)

The course introduces doctoral students (or advanced Master students) to contemporary research topics, with the attendance and active participation in presentations of original research, and presentation of critique and analysis of selected research. It is graded with Pass/Fail.

## MBA Course Descriptions Preparatory Courses

#### MBA 501 Business Computer Fundamentals (1 ECTS)

The course teaches basic skills in the use of common software tools for data analysis, electronic communications, presentations, access to information resources (financial and bibliographic databases) on electronic networks. The main focus is on the use of electronic spreadsheets for data analysis to support quantitative decisions.

#### MBA 502 Introduction to Accounting (1 ECTS)

This course is designed to familiarize students with basic accounting concepts. The course will introduce the basic

accounts, the accounting equation and the financial statements. We will then look at the effect of numerous transactions on different accounts, present and discuss the advantages and limitations of the accrual basis of accounting and the resulting year-end adjusting entries. The course will conclude by introducing and applying the above to merchandising companies.

#### MBA 503 Business Mathematics and Statistics (1 ECTS)

The course reviews fundamental mathematical concepts that are needed in subsequent MBA courses. Topics covered include basic calculus (functions, differentiation, integration) and linear algebra (systems of equations and inequalities). The course also examines basic topics in statistics such as elements of probability theory, probability distributions, measures of central tendency and dispersion.

#### **Core and Elective Courses**

#### MBA 511 Financial Accounting and Reporting (4 ECTS)

The major objective of this course is to provide a framework for understanding the role and usefulness of financial information provided by: a) organisations through their annual reports or through other means of communication, b) other capital market participants, such as financial analysts, credit analysts, or managers, c) the financial press. This course is designed to enable the student to understand financial statements intelligently, and make well-informed business decisions based on the financial information incorporated in the major financial statements. Throughout the course, students are expected to always undertake the role of the decision maker or the role of any other major capital market participant (e.g., credit analyst or banker, manager, financial analyst) and make decisions based on the relevant financial information. All the aforementioned issues will be applied extensively to the Cypriot and international capital markets.

#### MBA 512 Managerial Accounting (3.5 ECTS)

This course concentrates on the use of accounting information for costing, decision making and control in the firm. The first part introduces the principles of management accounting pertaining to cost behaviour, costing products and services, and using cost data in decision making. The second part addresses accounting as a vehicle for exercising control in the firm, and focuses on understanding the budgetary process, divisional performance measurement, compensation incentive systems, and the role of management accounting information in corporate governance.

#### MBA 513 Financial Analysis and Capital Markets (4 ECTS)

The major objective of this course is to present a comprehensive analysis of financial and capital market information as an aid to investing, financing and managerial decision making. The emphasis of this course will be: i) the major methods that users need to employ to analyze financial information such as ratio analysis, prospective analysis, i.e., forecasting and valuation; ii) on the quality of financial information and business strategy analysis; iii) applications, i.e.,

credit analysis and bankruptcy prediction, security analysis, management communication, economic value added, role of financial information in dividend policy and mergers & acquisitions; iv) corporate governance; v) international financial analysis and contemporary issues in financial analysis. All the aforementioned issues will be applied extensively to the Cypriot and international capital markets.

#### MBA 514 Business Law (2 ECTS)

The course examines the law that affects the current business environment. It analyses legal issues which business generally needs to address. The course covers contract law, commercial legal documents, bankruptcy, franchises, partnerships, joint ventures, corporations, labour law, property law and insurance.

#### MBA 515 Taxation (2 ECTS)

The course examines taxation issues that affect individuals and companies residing in the Republic of Cyprus. Specifically, it assesses the differences between financial reporting and reporting under taxation laws, international transactions, Value Added Taxation, corporation tax and income tax. Emphasis is placed throughout the course on tax planning for companies and groups of companies.

#### MBA 521 Financial Management (4 ECTS)

The course provides an introduction to corporate financial management. It is designed to introduce students to the concepts and techniques necessary to analyze and implement optimal investment and financing decisions by firms. The course emphasizes the effects of time and uncertainty on decision-making. Topics include basic discounting techniques, stock and bond valuation, capital budgeting, asset pricing models, efficient markets, corporate governance, and debt policies.

#### MBA 522 Capital Markets and Investments (4 ECTS)

This course is concerned with understanding the functioning of capital markets as well as the pricing of various financial instruments and selecting and evaluating investment strategies whose risk/return characteristics suit investor needs. The course emphasizes the fundamental principles of asset valuation and financing in competitive markets. Topics covered include capital Markets, passive and active portfolio management, the CAPM and APT pricing models, basic option pricing, portfolio construction and performance evaluation.

#### MBA 523 Options (4 ECTS)

The purpose of the course is to provide a broad overview of the field of derivatives to give students the necessary skills to value and employ options, option-like instruments and futures. The course covers the use of derivative securities by firms, traders and portfolio managers in order to speculate, hedge particular kinds of risk or alter the distribution of returns on their portfolios. In order to provide a useful treatment of these topics in an environment that is changing rapidly, it is necessary to stress the fundamentals and to examine particular applications at a more technical level.

#### MBA 524 Bank Financial Management (4 ECTS)

The course provides an introduction to bank financial management. Topics covered include the measurement and evaluation of bank performance, basic instruments and techniques, asset/liability management, new financial strategies and integrated decisions for bank management.  $\Delta$ he course also covers the measurement and management of interest rate, credit, and currency risk.

#### MBA 525 International Finance (4 ECTS)

Managing an international business or one exposed to global competition requires an understanding of international financial instruments, markets, and institutions. This course seeks to provide students with a working knowledge of these issues. The topics covered include: the nature of foreign exchange risk, the determination of exchange rates and interest rates, management of foreign exchange risk, exchange rate forecasting, and emerging market finance issues such as capital market integration, liberalization, and international capital flows.

#### MBA 526 Strategic Capital Budgeting (4 ECTS)

The course focuses on investment valuation with flexibility in adjusting future decisions and optimal exercise of embedded options in an uncertain competitive environment. The course emphasizes real options methodology and basic game theory principles in analyzing important strategic firm decisions. The course will supplement theoretical knowledge with case studies and use of software.

#### MBA 527 Risk Management (4 ECTS)

Uncertainty is prevalent in today's world and risk management emerges as a powerful tool in the arsenal of managers of modern global enterprises. This course will familiarize students with both the external and internal risks in a variety of institutional settings, and will present techniques for mitigating these risks. Enterprise-wide risk management for financial institutions can serve for managing risks in nonfinancial contexts, while non-financial risks can be hedged with modern financial products and insurance strategies.

#### MBA 531 Business Economics (3.5 ECTS)

This course focuses on the application of economic principles and methodologies to business decision problems by introducing the microeconomic and macroeconomic tools used in the analysis of business problems. In this course students will increase their understanding of economics and learn a variety of techniques that will allow them to solve business problems relating, among others, to costs, prices, revenues, profits, and market structure. Students will also use computer simulation exercises to examine how the macro economy works (inflation, unemployment, deficits etc) and the difficulties confronting economic policy makers using monetary and fiscal policies.

#### MBA 541 Methods for Management Decisions (3.5 ECTS)

The course focuses on scientific and systematic approaches to decision making and presents techniques for formulating and solving models for quantitative business problems. Tools and techniques presented include: decision trees, mathematical programming (optimization), network flow models, elements of queuing theory and simulation, time series analysis and forecasting, with applications to practical problems in resource allocation, production, inventory control, operations planning, finance and marketing.

#### MBA 542 Managing Operations (3.5 ECTS)

The course examines all activities related to the management of the resources required to produce the goods and services provided by the organisation. Topics examined include: introduction to operations management, operations strategy, process analysis product design and process selection in manufacturing and services, strategic capacity, facility location, facility layout, Just-In-Time systems, introduction to supply chain management, production planning, quality management, and inventory systems.

#### MBA 543 Management Information Systems (2 ECTS)

Information systems (IS) are pervasive in all business functions. The course examines the various types of IS encountered in modern businesses, their roles in supporting operations, managerial functions and competitive needs, challenges from the proliferation of IS and their strategic prospects. Technical issues related to IS infrastructure, hardware, software, networks and organisation of data resources are examined with an emphasis on managerial issues related to the development, effective deployment, management and strategic business uses of IS resources.

#### MBA 544 Business Statistics (3.5 ECTS)

The course presents the use of descriptive and inferential statistics in decision making. Topics covered include: describing and summarizing data, measures of central tendency and dispersion, probability distributions, the normal probability distribution, sampling methods and the central limit theorem, estimation and confidence intervals, hypothesis testing, analysis of variance, regression and correlation analysis. Emphasis is placed on practical applications with the use of statistical analysis software.

#### MBA 545 Service Management (4 ECTS)

This course provides a detailed look at how services can be effectively managed in today's challenging environment. The service sector represents the largest segment of most economies. The focus is on the service process and its three supporting elements: strategy, design and delivery. A mix of qualitative and quantitative tools is presented to understand and manage the underlying economics of service and e-service operations. Particular emphasis is placed on issues of service quality and process restructuring for increased performance.

#### MBA 546 Supply Chain Management (4 ECTS)

The course examines the management of the activities associated with the flow and transformation of goods from the raw materials stage through to the end user, as well as the associated information flows in order to achieve a sustainable competitive advantage. Topics covered include: Introduction to supply chain management, strategic fit in supply chains, cycle inventory, safety inventory, postponement and product design, transportation in supply chains, facility decisions, and coordination in the supply chain.

#### MBA 547 Quality Management (4 ECTS)

This course presents managerial and quantitative approaches for improvement of quality and productivity in service and manufacturing operations. Quality management is viewed as composed of two related systems, the management system, and the technical system. This course integrates these systems by presenting state-of-art approaches in organizing for quality. Concepts and techniques covered include among others: tools for process improvement, six sigma, quality awards, ISO 9000:2000 certifications, SPC, QFD, control charts, process capability assessment; implementation of quality improvement plans.

#### MBA 548 E-Commerce (4 ECTS)

The course examines technical, organisational and managerial issues associated with the adoption of E-Business and E-Commerce systems including important applications for enterprise resource planning, supply chain management and customer relationship management. The focus is on appropriate strategies to capitalize on the potential of electronic networks for the promotion and delivery of products and services, and the establishment of strategic alliances. B2C and B2B business models are examined.

#### MBA 549 Project Management (4 ECTS)

Project-based management is becoming the new general management in the contemporary business world since nearly all managers are involved in projects. The course presents a systematic approach in managing projects. Topics covered include: project definition, managing time and cost in projects, project organisation, resources in projects, managing quality in projects, project initiation and close-out, risk management, performance and evaluation, and project management software.

#### MBA 551 Marketing Management (4 ECTS)

This course provides an overall view of marketing's role in contemporary organisations and explores its relationship to the other business functions. It presents the marketing planning process and shows that effective marketing decision making builds on a thorough analysis and understanding of the marketing environment. It emphasizes the determination of the organisation's marketing mix, including product, pricing, promotion, and distribution strategies. It discusses the main challenges currently faced by marketing managers and presents recent developments in marketing theory and practice.

#### MBA 552 Marketing Research (4 ECTS)

The main objective of this course is to provide a fundamental understanding of marketing research methods. The course emphasizes the critical role of systematic information gathering in providing sound decision guidance. An extensive presentation of the various steps in the marketing research process is provided, including problem definition, research design, data collection, questionnaire design, measurement, sampling and data analysis. Particular attention is placed on the interpretation and use of research results in making marketing decisions.

#### MBA 553 Strategic Marketing (4 ECTS)

This course focuses on the strategic and managerial issues involved in formulating and implementing marketing strategy, and provides the tools, concepts and theories necessary to make effective strategic marketing decisions. A framework for developing marketing strategies that yield a sustainable competitive advantage based on customer, competitor, industry and environmental analysis is comprehensively analyzed. The course examines the most recent theories and methods, analytical techniques, and current best practices for developing marketing strategies.

#### MBA 554 International Marketing (4 ECTS)

This course addresses the opportunities and challenges associated with the development and implementation of marketing strategy in international markets. The course aims to impart the necessary knowledge and skills that will enable managers to effectively design and implement marketing plans in targeted foreign markets. Topics covered include the analysis of the international marketing environment; foreign market selection, targeting and positioning; foreign market entry modes; international marketing mix strategy; and the organisation and control of international marketing activities.

#### MBA 555 Marketing Communications (4 ECTS)

This course focuses on the key concepts, theories, strategies and tactics associated with marketing communications decisions. Particular attention is placed on the development of advertising campaigns, covering issues relating to the establishment of advertising objectives, the development of the advertising strategy, the advertising creative process, the advertising budget, media planning and the evaluation of advertising effectiveness. However, the importance of coordinating and integrating advertising with other communication tools (e.g., sales promotion, public relations, personal selling, and direct marketing) in order to achieve superior results is also emphasized.

#### MBA 556 New Product Development (2 ECTS)

New products are vital to the success of all companies. Thus, expertise in the development and marketing of new products is a critical skill for all managers. This course examines the methods and techniques used in analyzing market opportunities, and presents the new product development process, from idea generation to market launch. Topics covered include the generation of new product ideas, mapping customer perceptions, product life cycle, market segmentation, product positioning, forecasting market demand, product design, and new product testing.

#### MBA 557 Sales Management (2 ECTS)

This course focuses on the activities and problems of Sales Management. It examines the role of the sales force in different kinds of organisations, analyzes the key elements of the sales strategy, and shows how an effective sales strategy supports the overall marketing effort. An extensive presentation of the Sales Management process is provided, covering issues relating to the design of sales organisation structure, the recruitment, selection, training, motivation, control and compensation of salespeople, and the assessment of the sales organisations effectiveness and individual salespeople's performance.

#### MBA 558 Consumer Behavior (2 ECTS)

Contemporary marketing thought emphasizes the critical importance of adopting a customer-oriented approach to business. A thorough understanding of the buyer decisionmaking process is critical to successful marketing. This course examines the factors that influence the buying behaviour of consumers and industrial customers and outlines their implications for marketing strategy. The course aims at building the necessary knowledge that will facilitate managers in predicting buyers' response to marketing actions and in developing effective marketing strategies and tactics.

#### MBA 561 Leading and Managing Organisations (4 ECTS)

This course is designed to increase the effectiveness of students as managers within any organisational context by introducing them to a framework for understanding the way organisations function and the behavior of individuals and work groups within them. Diversity, continuous application of new technologies and ever-greater interdependence – between individuals, work groups, and organisations – drastically challenge the skills and creativity of modern managers.

#### MBA 562 Corporate Social Responsibility and Ethics (2 ECTS)

This course examines the foundations of moral reasoning and the analysis of ethical issues that arise in a wide range of contemporary business practices. The central aim of the course is to enable students to develop a framework through which to recognize, critically analyze, and appropriately respond to the social, ethical, and political challenges and dilemmas as they arise in their careers.

#### MBA 563 Entrepreneurship (4 ECTS)

The purpose of this course is to explore the many dimensions of new venture creation and growth. While most of the examples in class will be drawn from new venture formation, we will also draw on cases from entrepreneurship, social and non-profit entrepreneurship. The class sessions will be devoted to the process of conceptualizing, developing, and managing successful new ventures, ideas or products towards the creation of a business plan.

#### MBA 564 Strategic Management (3.5 ECTS)

The course explores a wide range of strategic issues facing businesses, focusing particularly on the sources of sustainable competitive advantage and the interaction between industry structure and organisational capabilities. It introduces a variety of modern strategy frameworks and methodologies and builds upon material from core topics such as economics, organisational processes, operations and marketing.

#### MBA 565 Human Resource Management (4 ECTS)

The objective of this course is to provide an overview of Human Resource Management (HRM) as an integral function of any organisation. It is focused on the planning and application of all human resource management activities, functional and strategic, with special emphasis on the importance of human resources as a source of organisational competitive advantage.

#### MBA 566 Leadership (4 ECTS)

This course discusses the fundamental aspects of leadership, starting from the premise that leadership is a process, not a position. The course focuses on the interaction between the leaders, the followers and the situation as a model for studying the leadership process and examines the traits and values of leaders, charismatic leadership, the problems encountered by current leaders and the role of emotional intelligence in dealing with these problems. Special emphasis is placed on "surviving leadership."

#### MBA 567 Managing Change (2 ECTS)

The challenges of globalization, new technologies and heightened public and stakeholder scrutiny increasingly require change skills throughout the organisation. This course will arm students with practical skills and hands-on tools for planning and guiding systemic change (strategic shifts, business turnarounds, organisational transformations) and managing specific change projects (innovations and new ventures).

#### MBA 568 Negotiations (2 ECTS)

In a constantly changing business environment, successful negotiation is a must for business leaders. This course focuses on developing negotiation skills and the ability to critically assess negotiation situations. Conflict management is stressed and special emphasis is placed on understanding difficult cases through real-world cases, exercises, role plays and simulations.

#### MBA 569 Creativity and Innovation (2 ECTS)

The course focuses on the challenges inherent in attempting to take advantage of both incremental or routine innovation and more radical or revolutionary changes in products and processes. It highlights the importance of innovation to both new ventures and to large established firms and explores the organisational, economic and strategic problems that must be tackled to ensure innovation is a long-term source of competitive advantage.

#### MBA 574 Principles of Business Communication (2 ECTS)

Effective communication is an important skill in business. This course develops an awareness of the complexity involved in the communication process so that current and prospective managers learn to communicate effectively both verbally and nonverbally in a business setting. Emphasis will be placed on developing a business communication plan, correctly identifying one's audience and the importance of communication in regard to company image. The elements of successful internal and within-group communication are also examined.

#### MBA 590 Applied Business Project (21 ECTS)

The applied business project is considered the epitome of the programme. It attempts to combine knowledge and tools acquired during the Programme with practice. During the first part of the applied business project, students are expected to develop their research questions identified through an exploratory study. Upon completion of the first part of the project, it is expected that students will have developed a specific course of action to examine the issues of the collaborating organisation that need to be resolved. The applied business project is completed by groups of students under the supervision of a faculty member.

During the second part of the applied business project, students implement the action plan developed during the initial stage. Teams collect and analyze information from the organisation and propose applicable solutions. During this part, teams complete the writing of their applied business project and present their results to a committee.

## **Research Interests of the Academic Staff**

## Christakis Charalambous

Professor

Mathematical Programming, Artificial Neural Networks, Largescale Optimization, and Signal Processing.

#### Andreas Charitou

#### Professor

Capital Markets Research, International Financial Analysis, Credit Analysis and Bankruptcy, International Accounting.

#### George Drymiotes

## Assistant Professor

Corporate Governance, Managerial Incentives, Conflicts of Interest, the Role of the Board of Directors and its Interactions with Shareholders and Management.

#### George Hadiinicolas Associate Professor

International Manufacturing, the Marketing-Production Interface, Product Positioning Methods, Multistage Production Systems.

## Irene Karamanou-Makri

#### Assistant Professor

International Accounting, Analyst Forecasts, Earnings Management, International Capital Markets and the Relevance of Accounting Information.

#### George Kassinis

#### Associate Professor

Business Policy, Environmental Management, Technology Policy, and Regional Development.

#### Leonidas C. Leonidou

#### Professor

International Marketing/Purchasing, Relationship Marketing, Marketing in Emerging Economies, and Strategic Marketing.

#### • Spiros H. Martzoukos Associate Professor

Analytic and Numerical Valuation of Derivatives, Theory and Methods of Real Options, Investments with Learning, Optimal Portfolio Construction.

#### Alexandros Michaelides

## Professor

Asset Pricing, Savings, Portfolio Choice, Household Finance.

#### Andreas Milidonis

#### lecturer

Bond Pricing, Credit Risk, Markov Switching Processes, Actuarial Science.

#### Nicos Nicolaou

#### Assistant Professor

Enterpreneurship, Behavioral Genetics, University Spinouts, Social Network Theory, Innovation Management.

#### George Nishiotis

#### Assistant Professor

International Finance, Empirical Asset Pricing, International Capital Market Integration, and Emerging Capital Markets.

#### Alexia Panaviotou

#### Assistant Professor

Social constructionism and discursive/cultural psychology; language and organisations (linguistic production of organisational identity and the use of metaphors in organisational science); emotions and organisations; decisionmaking, leadership and culture; and gender issues.

#### Andreas Soteriou

#### Associate Professor

Service Management, Quality and Service Quality Improvement, Customer Satisfaction, Service Efficiency and Effectiveness.

## • Eleni Stavrou-Costea

## Associate Professor

Individual and Group Behavior, Succession Planning, Leadership and Management Development, Group and Family Dynamics, Intergenerational Transitions, International Human Resource Management, and Negotiation, Culture, and Motivation.

#### Marios Theodosiou

## Assistant Professor

Standardization versus adaptation of marketing strategy in international markets, Marketing strategy-performance relationship in the context of international business ventures, Export Marketing Strategies, International Marketing Management, Internet Marketing Strategy.

#### Lenos Trigeorgis

#### Professor

Corporate Finance, Capital Structure, Options and Futures, Capital Budgeting, Competition and Strategy.

#### Haridimos Tsoukas

#### Professor

Knowledge-based Incentives in Organizations, Organizational Learning, Management of Organizational Change and Social Reforms, Practical Reason in Management Studies, Epistemological Issues in Organization Theory and Management Studies.

#### Nikos Vafeas

#### Professor

Financial Accounting, Corporate Governance and Executive Compensation.

#### Hercules Vladimirou

#### Associate Professor

Stochastic Programming, Large-scale Optimization, Production Management / Planning, Inventory Planning / Control, Parallel and Distributed Computing, Models for Planning under Uncertainty with Applications in Financial Planning.

#### Costas Xiouros

#### Lecturer

Theoretical Asset Pricing, General Equilibrium, Computational Methods.

## Stavros A. Zenios

## Professor

Financial Engineering with applications in Risk Management of Financial Institutions, Mathematical Programming under Uncertainty, Network Optimization, and Parallel and Vector Supercomputing and Algorithms.

## **Contact Details**

## **Graduate Studies Committee**

Andreas Charitou Alexandros Michaelides Lenos Trigeorgis

#### **Doctoral Programme Directors**

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George Nishiotis e-mail: nishioti@ucy.ac.cy

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e-mail: mba@ucy.ac.cy http:// www.mba.ucy.ac.cy

#### **MBA Directors**

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Andreas Soteriou e-mail: basotir@ucy.ac.cy

#### **Department Secretariat**

Myria Kourri Tasoula Papadopoulou Eugenia Tsinti Tel.: 22893636/3605/3650 Fax: 22895030 e-mail: papadopoulou.tasoula@ucy.ac.cy

http://www.ucy.ac.cy/pba-en

## **Centre for Banking and Financial Research**

## Introduction

The Centre for Banking and Financial Research – originally the HERMES Centre on Computational Finance and Economics – was established in 1999 as an independent research unit within the Faculty of Economics and Management. The Centre undertakes high quality research in the fields of finance, economics and their applications, and has received international recognition for its research. In 2000 it was awarded the status of a European Centre of Excellence under the aegis of the EU Fifth Framework Programme.

The Centre involves faculty from the Departments of Public and Business Administration, Economics, and Mathematics and Statistics. The faculty develop projects for and in conjunction with banks, insurance firms, institutional investors, and are also involved in networking and training activities (conferences, workshops, exchanges of staff with other research centres, etc.).

## Goals

The Centre has set the following objectives:

- Basic and applied research targeting important issues such as risk management, efficiency and quality in financial services, effective decision support for asset and liability management under uncertainty, utilization of derivatives in portfolios, valuation of complex investment projects, analysis of household portfolios
- Scientific and scholarly contributions to challenging practical problems through the development, implementation and empirical validation of advanced quantitative models in the areas of finance, economics, operations research, statistics and econometrics, and exploitation of modern computing capabilities
- Participation in international networks and joint research projects with European institutions to further broaden and strengthen its network of international collaborations
- Attraction of research support from international and domestic organisations through competitive proposals
- Creation of an environment conducive to interdisciplinary cooperation and promotion of joint research projects

- Dissemination of the Centre's accomplishments and research results to the professional and academic community through publications, conferences, staff exchanges, participation in training networks, etc.
- Upgrading its infrastructure with modern computing hardware, specialized software and financial databases to support empirical studies on important financial planning problems

The Centre also aims to assist domestic institutions face the challenges arising from financial liberalization, helping to improve their effectiveness, profitability and competitiveness in the international arena with:

- Technology transfer through training workshops and dissemination of the Centre's research results
- Joint pursuit, with local private and public institutions, of applied projects on the development or adaptation of decision support tools for practical problems (e.g., risk measurement, assessment of credit risk exposures, classification of debtors, management of asset and liability portfolios, assessment of efficiency in banking operations, determination of household portfolio compositions, etc.)
- Collection of important databases on domestic economic and financial activities

The Centre aims to assist domestic institutions incorporate effective decision support tools in their performance– monitoring and decision–making processes. Such tools are necessitated by increasing competitive pressures due to the liberalization of the financial sector, and the need to comply with international standards (e.g., the Basel Accord governing banking operations, especially for risk management).

## **Research Activities**

The Centre pursues a broad research agenda on strategic, tactical and operational financial decision problems for both the supply side (financial institutions) and the demand side (households and investors). Emphasis is placed on the challenges created for both sides by globalization and innovations of the financial markets, and on the peculiarities of the local economy as it strives to achieve competitiveness in the European economy. Theoretical modelling, empirical data-driven research and the extensive use of computations are the cornerstones of the disciplinary approaches of the Centre's research, which brings together faculty and graduate students from finance, economics, accounting, management science, mathematics, statistics and computer science. Currently, the research activities of the Centre cover the following areas.

## **Risk Management and Portfolio Management**

The research of this sector focuses on the development, empirical implementation and validation of mathematical models for optimal portfolio management and effective control of risk exposures. The models are based on simulations and stochastic optimization programs for planning under uncertainty and require extensive computations. Uncertainty is prevalent in financial applications and must be completely considered in financial decision-making. This has become more pressing in order to avoid financial failures and also to comply with increasingly stringent risk management regulations. Many investments are exposed to multiple risk factors that have concerted effects on the value of portfolios. This dictates the use of sophisticated simulation and optimization frameworks that can account for the combined effects of multiple risk factors. We develop appropriate simulation and optimization models that account for the joint effects of multiple risk factors on various types of assets and liabilities (e.g., corporate bonds, bank loans, credit sensitive securities, international indices, etc.). Our recent studies concern innovative applications of stochastic programming models for risk management and optimization of performance in:

- portfolios that contain credit sensitive securities (e.g., corporate bonds)
- international investment portfolios that are exposed to market risks as well as currency risks from fluctuations in exchange rates
- effective incorporation of derivatives in portfolios to hedge financial risks
- asset and liability portfolios of pension funds and insurance products with guarantees
- computer-aided design of financial instruments (e.g., callable bonds)

## Efficiency, Profitability and Quality of Financial Services

The research in this sector focuses on improving the efficiency of financial institutions, the quality of their services and the effectiveness of their risk management practices. Recent activities include:

- Identification and empirical assessment of the effects of quality on planning the delivery of financial services, and the development of methods for measuring such effects.
- Implementation of a "Customer Satisfaction Barometer" for the banking sectors in Greece and Cyprus. This barometer employs a theoretical framework to: (a) compile an extensive collection of pertinent data to support empirical studies; (b) determine the primary criteria of quality of financial services in the banking sector; (c) develop a methodology for the systematic application of a customer satisfaction barometer, and investigate the potential of such a barometer towards improving the efficiency, effectiveness and quality of banking services; (d) empirically validate fundamental theoretical relations between quality and profitability measures.
- Study of current risk and quality management practices in the financial sector and investigation of their effects on efficiency and effectiveness of financial institutions. Faculty of the Centre have pioneered a pan-European survey on the performance of financial institutions in order to develop an extensive database for use by researchers studying the drivers of performance. Multivariate statistical analyses are applied to investigate the effects of quality and risk management practices on financial performance, so as to guide decisions for performance improvements that are critical for maintaining competitiveness.

## Modern Capital Budgeting and Derivatives Pricing

Modern methods are used for capital budgeting decisions under uncertainty, replacing the traditional net present value approach. These methods are based on real options, game theory and stochastic processes, and account for inherent flexibilities in making long-term, multistage decisions, thus providing an improved valuation framework. This sector studies the application of option pricing methods to the valuation of flexibility in multistage decisions, optimal timing of investment implementations, optimal choices of technology, resources and products under incomplete information and competitive actions, etc. These methods provide decision support tools for managerial and strategic investment decisions in research and development projects, new product developments, etc. The sector also studies new procedures for the design and valuation of complex derivatives on stocks, bonds, indices, currencies, and credit instruments. The valuation methods are empirically assessed through extensive numerical computations.

## **Conferences and Training Programmes**

The Centre is particularly active in organizing international conferences. Professor Harry Markowitz (Nobel laureate in Economics, 1990) was the plenary speaker at the Centre's inaugural conference on "Asset and Liability Management: From Institutions to Households" in May 2001. The Centre organised several international conferences and workshops in recent years.

In September 2001, the Centre co-organized an academic conference in honour of Professor George Constantinides, who received an honorary doctorate from the University of Cyprus (13th September 2011).

## **Research Funding**

The Centre has been successful in attracting funds from competitive research programs of the European Union to support several of its research and training activities. In the context of externally funded programmes the Centre participates in staff exchanges with European universities and research institutes, runs training programs for young researchers, and organises workshops and seminars. Research programmes have also been funded by the Cyprus Research Promotion Foundation, the University of Cyprus, the Central Bank of Cyprus, the Cyprus Development Bank, and other financial institutions.

## Collaborations

The Centre maintains close collaborative relations with research groups at various universities in Europe and North America. For example, at the University of Cambridge, Imperial College, City University and Brunel University in the UK; at the Universities of Rome, Bergamo and Palermo in Italy; at the University of Vienna in Austria; at the Technical University of Denmark; at ETH-Zurich in Switzerland; at Göthe University of Frankfurt in Germany; as well as at the University of Pennsylvania in the USA. Some of the Centre's research programmes were carried out in collaboration with research teams from these institutions.

The Centre has collaborations with other international organisations, such as Prometeia Calcolo S.r.l. (Italy), Algorithmics Inc. (Canada), GAMS Development Corporation (USA and Germany), etc. The Centre also collaborates with banks, financial, insurance and consulting firms in Cyprus.

## Infrastructure – Facilities

The Centre's computer laboratory is equipped with a network of modern workstations and personal computers that provide access to a collection of specialized software, and extensive financial and bibliographic databases that support empirical and computational research.

## Organisation

The Centre for Banking and Financial Research operates as an autonomous unit in the School of Economics and Management. It is managed by its Director and its Academic Council. The Director is selected from among the senior faculty of the School of Economics and Management and is responsible for coordinating the activities of the research groups, promoting collaborative group projects and managing administrative matters. The Academic Council consists of the principal investigators of research projects; oversees organisational matters and promotes external collaborations.

## **Contact Details**

**Director** Alexandros Michaelides Professor Tel.: 22893645 e-mail: a.michaelides@ucy.ac.cy

http://www.ucy.ac.cy/cbfr-en

## FACULTY OF ENGINEERING

Department of Architecture (208)

Department of Civil and Environmental Engineering (214)

Department of Electrical and Computer Engineering (228)

Department of Mechanical and Manufacturing Engineering (240)

# Architecture

The aim of the graduate programme of Architecture is to promote scholarly research leading to learning and innovation according to international standards of excellence, in the broader discipline of Architecture and within multidisciplinary and interdisciplinary fields. The Ph.D. degree is research oriented; this allows identification of relevant international architectural issues while promoting opportunities for local architectural development. The thematic contents of the specific courses offered each semester are based on the educational and research interests of the faculty.



## Introduction

The role and significance of Architecture can hardly be overestimated. The field is inherently related to a wide variety of areas with aesthetic, technological, social, cultural, economic and political issues that define the human environment. The Department of Architecture consequently has an important role to play in producing architectural skills and knowledge through research, in providing high quality education to students and practitioners of architecture alike. It will also enhance the much-needed dialogue among the parties directly or indirectly involved in its production.

The aim of the Department of Architecture is the education of architects who can perform successfully worldwide but who also have the knowledge and sensitivity to respond and influence positively the built environment of Europe. In support of this the Programme of Architecture provides high quality degree programmes at both undergraduate and postgraduate levels. These programmes emphasize fundamental principles that prepare architects concerned with the challenges of meeting society's needs in a rapidly changing environment. Students participate in research, planning and design in an academic environment, in cooperation with the faculty, research and professional organisations.

The Programme of Architecture admits graduate students each year at the Doctoral level (Ph.D. in Architecture).

## **Research Areas**

Research in the Ph.D. Programme of Architecture focuses on the following areas:

- Architectural Theory and History
- Architectural Communication Media
- Architectural Technology
- Urban Design

## **Financial Support**

The University of Cyprus supports many graduate students through teaching assistantships, the number of which fluctuates according to the needs of each year's programme of studies. There are also additional funding opportunities, information on which is available through the Office of Student Affairs. A number of students can be financially supported through research programmes.

## **Doctor of Philosophy Degree (Ph.D.)**

Graduate students are awarded a doctoral degree by the Programme of Architecture after successfully completing

the required course of study and successfully defending and writing their Ph.D. thesis. The minimum duration of the Ph.D. Programme in Architecture for full-time students is 6 semesters.

## Admission to the Ph.D. Programme

Applicants to the Ph.D. Programme must possess a Diploma in Architecture (5-year course of study), or the equivalent of a Master (M.A. or M.Sc. in an area of Philosophy, Social Sciences, Fine Arts, Applied Arts, Civil Engineering, Environmental Engineering, Electrical Engineering, Mechanical Engineering, Informatics, Administration or Economic Sciences), from an accredited university.

Candidates must submit an application form to the Programme of Architecture within the announced time limits.

For more information on the application and registration procedures, see the *Admission and Attendance Regulations– Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, candidates are requested to state their intended focus area and expectations from their doctoral studies in their statement of purpose when applying. They are also requested to submit any other supportive documentation as evidence of their qualifications.

Applications are evaluated by the graduate admissions committee of the Programme of Architecture which makes suggestions to the Council of the Department for final approval of the selected candidates for doctoral studies. The applicants to the Ph.D. Programme are selected according to the following criteria:

- Quality of the applicant's background in breadth and depth, and past performance in his/her undergraduate and graduate studies
- Indications of ability for original and innovative research in the proposed area of study
- Relevance of the proposed field of research to the interests of the department, the university and society
- Availability of graduate positions in the doctoral programme and the necessary infrastructure and resources to support the proposed doctoral work
- Excellent knowledge of the English language is required for admission to the doctoral programme

## **Programme of Study**

The programme of study leading to the Ph.D. degree in Architecture requires the completion of a minimum of 240 ECTS in graduate level courses and research work, as follows:

## Graduate Courses (a total of 80 ECTS)

Graduate courses related to the Ph.D. thesis (students with a Diploma degree in Architecture are credited up to 24 ECTS of the required 80 ECTS and students with a Master degree are credited up to 56 ECTS of the required 80 ECTS).

## Ph.D. Thesis Research (160 ECTS)

Students should select, in consultation with their advisors, the courses that will help them in the completion of their Ph.D. thesis. Any undergraduate courses and/or courses outside the Programme of Architecture are acceptable only after prior approval by the graduate committee of the Programme of Architecture, following a justified petition by the student, signed by his/her academic advisor. In order to comply with the Ph.D. Programme of Architecture must approve the petition before the student registers for the respective course.

## **Ph.D. Thesis**

## **Comprehensive Examination**

Admission to candidacy for the Ph.D. programme is granted when the student has satisfactorily passed a comprehensive examination (written and oral), intended to evaluate fundamental ability and knowledge in Architecture as well as specialized knowledge and understanding of the intended research area.

The comprehensive examination covers three relevant subject areas from the main areas in Architectural Theory and History, Architectural Communication Media, Architectural Technology and Urban Design. For the written examination a grade of at least 50% in all three areas is required. The oral examination should take place within six weeks after the written examination.

## **Dissertation Proposal**

Doctoral students must prepare a brief written proposal of their intended doctoral research, and make a comprehensive oral presentation on the proposed work before the dissertation committee and a representative from the graduate committee of the Programme of Architecture. Students must demonstrate that they have a sound understanding of the dissertation topic, the relevant literature, the methodology to be employed, the issues to be addressed, and the work done on the topic. The proposal must be made at least one year before the intended date of defence.

## **Doctoral Dissertation**

The doctoral dissertation must address current and valid theoretical, scientific and/or technical issue(s) primarily by fundamental research, leading to the creation of new architecturally specific knowledge. Applied research and development aspects, leading to a prototype or an application of this basic research, may also be included as a secondary component of the dissertation. The research must be novel and original, and of the highest scholarly standards, qualifying it as acceptable for publication in international academic journals.

The intellectual merit of the dissertation must be based on significant research findings by the doctoral candidate, distinguished clearly from the work of others, testifying to the candidate's personal contribution and scholarship, and acknowledging support by others in or outside the University. In addition, the broader impacts of the research must be highlighted in the dissertation, in terms of opening new related areas or issues, and generating new theoretical, and/or technical applications and innovations.

#### **Dissertation Defence**

Each doctoral candidate is required to defend the research during an oral dissertation defence before a five-member Examining Committee.

For more information on the Comprehensive Examination, the Dissertation Proposal, the Doctoral Dissertation and the Dissertation Defence, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

#### **Categories of Graduate Courses**

Students must successfully take a number of courses that are related to their graduate programme of studies in Architecture that will credit them with the required number of ECTS according to their programme requirements. The following list shows the courses that may be offered from the programme of graduate studies in Architecture depending on the availability, the educational and research interests of the Faculty.

#### List of Courses

#### **Constrained Elective Courses**

ARH 500 Research Methodologies ARH 502 Design Based Research ARH 504 Independent Studies ARH 602-609 Ph.D. Research

#### **Architectural Theory and History**

ARH 510 Theories of Architecture ARH 511 Architecture and Ecology ARH 512 Architecture in Philosophy ARH 514 Design Applications in Architectural History ARH 516 Buildings in History ARH 518 Theory, History and Criticism ARH 519 Advanced Topics in Architectural Theory and History

#### **Architectural Communication Media**

ARH 520 Theoretical Investigations in Visual Communications ARH 522 Advanced Computer Aided Design Topics ARH 524 Virtual Reality and the Built Environment ARH 526 Perception and Cognition in Architecture ARH 528 Experimental Art and Architecture ARH 529 Advanced Topics in Architectural Communication Media

#### Architectural Technology

ARH 530 Advanced Building Technology ARH 532 Construction Design ARH 534 Structural Building Design ARH 536 Advanced Construction Materials Technology ARH 538 Environmental Building Design ARH 539 Advanced Topics in Architectural Technology

#### **Urban Design**

ARH 540 The Mediterranean City ARH 542 Space Syntax ARH 544 Urbanism in History ARH 546 Urban Design and Planning ARH 548 Landscape Architecture ARH 549 Advanced Topics in Urban Design

## **Course Descriptions**

Each course description stipulates any necessary prerequisites and the number of ECTS. The ECTS are followed by three numbers that indicate the hours required for lectures including exercises, labs or studio work and homework (preparation and problem sets), respectively.

#### **Constrained Elective Courses**

#### ARH 500 Research Methodologies

(8 ECTS: 3-0-12)

Foundation course on the diversity of research paradigms in architecture for graduate students in the Ph.D. programme. Introduction to the philosophy of knowledge with an emphasis on architecture. Critical review and evaluation of diverse research methodologies in current architectural research. Students produce a report that critically reviews selected course readings and discussions.

#### ARH 502 Design Based Research

#### (8 ECTS: 3-10-0)

This course aims to provide a working environment for the Ph.D. candidate and design ideas relevant to the Ph.D. subject. Students select the area of design emphasis depending on their interests while working with a member of the faculty.

#### **ARH 504 Independent Studies**

(ECTS units assigned by the thesis advisor) Individual research, laboratory or studio survey under the supervision of the faculty.

#### ARH 602-609 Ph.D. Research

(ECTS units assigned by the thesis advisor) Graduate research with intermediate reviews. Conception, development and defence of a Ph.D. dissertation.

#### **Architectural Theory and History**

#### **ARH 510 Theories of Architecture**

#### (8 ECTS: 3-0-12)

Investigation of written architectural theory through specifically architectural works as well as through a wider framework. Interpretation of selected texts from Vitruvius to the twenty-first century. The relationship between theory and the larger social and practiced context of each age. Architectural theories and their implications in relation to tradition, change, innovation and revolution.

#### ARH 511 Architecture and Ecology

#### (8 ECTS: 3-0-12)

This course analyzes the history-theory of environmental consciousness in architecture, situating the topic within 20th-century architectural theory and praxis. It covers the social visions and technological experiments that shaped architecture, and examines how these were intertwined with environmental history and the history of science and technology. The course also examines more recent notions such as eco-development, green architecture and sustainability, and their impact on current architectural debates.

#### **ARH 512 Architecture in Philosophy**

#### (8 ECTS: 3-0-12)

Consideration of the reciprocal relation between Architecture and Philosophy throughout the historical and geographic spectrum of the western tradition. Discussion of thought from the Pre-Socratics to Husserl, Heidegger, Baudrillard, Merleau-Ponty, Foucault, Ricoeur, Derrida, Deleuze and others in conjunction with developments in Architecture. Architectural theories and their influences on the intellectual advances of various ages.

#### ARH 514 Design Applications in Architectural History

#### (8 ECTS: 3-0-12)

Study of theoretical approaches to Architectural design from the early modern world to the twenty-first century. Comparative studies between the architectural and intellectual bodies of work and

the designed and constructed environment of each epoch. Topics include theories of light, of infinity and of taxonomical and analytical systems, and design ideologies of the sign, of chaos, and of a-formity in the postmodern era.

#### ARH 516 Buildings in History

#### (8 ECTS: 3-0-12)

In-depth research, analysis and documentation of individual buildings or groups of structures and spaces in local and regional contexts. Development of critical observation and interpretative skills in the study of past Architectures.

#### ARH 518 Theory, History and Criticism

#### (8 ECTS: 3-0-12)

Investigation of the variations of contemplative thought on the concept of history from an architectural perspective. Presentation and comparison of historical contexts and their theoretical and practiced approaches to that which preceded them. Discussion of alternative truths and development of critical attitudes towards the subjective nature of history.

#### ARH 519 Advanced Topics in Architectural Theory and History

#### (8 ECTS: 3-0-12)

Subjects in this course will vary according to emerging student needs or requests and the educational and research interests of the faculty.

#### **Architectural Communication Media**

#### ARH 520 Theoretical Investigations in Visual Communications

#### (8 ECTS: 3-0-12)

Theory and examination of the role that the visual occupies in art, architecture, cinema and related fields. Search for and discussion of common threads of development and common practices of dissemination in these related but distinct disciplines of cultural production.

#### **ARH 522 Advanced Computer Aided Design Topics**

#### (8 ECTS: 3-0-12)

Review of computer aided design and programming techniques. Modelling, visualization and computerized production of architectures. Discussion and presentation of examples such as traditional building structures, large area systems, experimental web environments, and emerging hybrid typologies. Integrated project models including seamless information linkages between designers and manufacturers (CAD/CAM).

#### **ARH 524 Virtual Reality and the Built Environment**

#### (8 ECTS: 3-0-12)

Examination of the concept of the virtual within contemporary urban experience. Theoretical engagement of the competition of visual clues with spatial and other signs in the city in the conception and construction of present and future visions of the built. Urban totalities as unavoidably part material and part virtual environments.

#### **ARH 526 Perception and Cognition in Architecture**

#### (8 ECTS: 3-0-12)

Investigation of the perceptual and cognitive horizons within the experience of Architecture. Discussion and criticism of binary

thought commencing with perception/cognition and engaging wider dualities such as nature/culture, structure/ornament, beauty/taste, etc.

#### **ARH 528 Experimental Art and Architecture**

#### (8 ECTS: 3-0-12)

Examination of what lies beyond the generally accepted limits in contemporary art and architecture. Attempt at the redefinition of art and architecture in innovating ways through projects which ask for theoretical and material constructs. Students are free to choose the topic and are expected to formulate their proposal following research of what they see as related precedents in either field.

#### **ARH 529 Advanced Topics in Architectural Communication Media**

#### (8 ECTS: 3-0-12)

Subjects in this course will vary according to emerging student needs or requests and the educational and research interests of the faculty.

## **Architectural Technology**

#### ARH 530 Advanced Building Technology

#### (8 ECTS: 3-0-12)

Case studies and architectural design analysis derived mainly from structural engineering issues. Introduction to architectural works with emphasis on structural, construction and environmental design aspects. A design project emphasizing structural and construction design is required from each student. Integrated course with CEE graduate Programme.

#### **ARH 532 Construction Design**

#### (8 ECTS: 3-0-12)

Integration of architectural technology with the process of design and its objectives through construction design. Technology transfer in search of appropriate prototype applications in design projects. Construction detailing.

#### **ARH 534 Structural Building Design**

#### (8 ECTS: 3-0-12)

Structural systems for special loading cases such as earthquakes and/or long-span structures and tall buildings. Architectural integration and investigation of the structural properties and systems behaviour and efficiency. Case studies analysis and individual design projects.

#### **ARH 536 Advanced Construction Materials Technology**

#### (8 ECTS: 3-0-12)

Advanced studies in metals, adhesives, glasses, plastics, etc. and their effects on the present and future building industry and environment. Case studies in advanced materials applications and innovative building systems, addressing leading technologies, processes and applications.

#### ARH 538 Environmental Building Design

#### (8 ECTS: 3-0-12)

Study of environmental attributes (thermal, luminous, air quality, acoustic) and their physical dimensions for the development of energy and resource-efficient buildings. Design of climatically advanced buildings based on energy conservation and/or renewal mechanisms and improvement of environmental control systems

in buildings – heating, ventilation, lighting, glazing and technical control systems.

#### ARH 539 Advanced Topics in Architectural Technology

#### (8 ECTS: 3-0-12)

Subjects in this course will vary according to emerging student needs or requests and the educational and research interests of the faculty.

## **Urban Planning**

#### **ARH 540 The Mediterranean City**

#### (8 ECTS: 3-0-12)

Exploration of histories, characteristics, topographies and urban fabrics of selected port-cities along the Mediterranean. Analysis of the role that location played in the formation of past and present urban identities of considered examples. The goal is to examine the character of urban locus at the interface between land and sea, and to understand its influence on the development of historic and contemporary culture.

#### ARH 542 Space Syntax

#### (8 ECTS: 3-0-12)

Analysis of the spatial characteristics of internal and external space through the use of qualitative and quantitative tools. Case studies in the form of post-occupancy evaluations, comparing the intended with the actual use of different spatial configurations. Subject matter ranges from houses to complex buildings, and from small public squares to large urban entities.

#### **ARH 544 Urbanism in History**

#### (8 ECTS: 3-0-12)

Examination of specific topics in the history of Urbanism through the study of its intellectual and social context. Focus oscillates between utopian and theoretical to religious and political manifestations of urban design. Content and methodology emphasize as well as rely on an inter-disciplinary approach to the subject, and are inclusive, but not exhaustive of, literature, poetry, painting, music, and cinema.

#### **ARH 546 Urban Design and Planning**

#### (8 ECTS: 3-0-12)

Investigation of planning principles necessary for the communication between architects, urban designers and urban planners when dealing with contemporary urban complexity. Discussion of the complementary nature of Architecture, Urban Design and Urban Planning. Reports and projects of theoretical and applicable proposed models of cooperation in specific cities in Cyprus and surrounding countries and regions.

#### **ARH 548 Landscape Architecture**

#### (8 ECTS: 3-0-12)

The nature of Nature. Engagement and study of various natural and constructed landscapes. Theory, site analysis and landscape design both in the local as well as the regional urban context. Consideration of themes such as climate, water shortage, topography, geology, natural vegetation and culture in Cyprus and surrounding countries and regions.

#### **ARH 549 Advanced Topics in Urban Planning**

(8 ECTS: 3-0-12)

Subjects in this course will vary according to emerging student needs or requests and the educational and research interests of the faculty.

## **Research Interests of the Academic Staff**

#### Nadia Charalambous

#### Lecturer

Her research interests focus on two areas: a) academic teaching and the education of an architect b) space, ethnicity and culture in dwellings, settlements and urban arrangements (socio-spatial forms of cultural heritage, spatio-temporal definition and interpretation of domestic experience). Underpinning all research and professional activities is a continuous interest in the sociospatial, and more recently also temporal, dimensions of society and culture.

#### • Christos Hadjichristos Assistant Professor

His research interests include architectural theory, the nature of architectural education and knowledge, architectural design, design studio, the nature of architectural culture and practice, domestic architecture, architectural and urban spatial configurations and social praxis, the current and potential relationship between structural and architectural design and the aging of architectural projects.

## Odysseas Kontovourkis lecturer

Lecturer

His research interests lie in Pedestrian movement behaviour modelling, Pedestrian dynamics and circulation design, Wayfinding and emergency evacuation in buildings, Design of circulation systems in passengers transportation buildings, Computer-aided design and digital fabrication, Parametricassociative design, Computer-generated design, Generative processes and emergence in design, Biological analogy and architectural design, Theory of design process and the use of computers, Digital design and structural analysis.

## Maria Philokyprou

## Lecturer

Her research activities cover the areas of conservation, restoration and reuse of traditional and historical buildings. Her main research interests lie in the History of Architecture of Cyprus and particularly in the analysis of the vernacular architecture of the island in relation to the Mediterranean area. She is also interested in sustainable development with regard to building materials and bioclimatic design principles of vernacular architecture, revitalization of the building environment, issues regarding the embodiment of new structures in sensitive historic centers, traditional building technology and design of new environmentally "friendly" materials.

#### • Marios C. Phocas Associate Professor

His teaching and research activities cover the areas of integrated architectural design, building technology and earthquake

resistant structural building design, structural control and earthquake isolation.

## Panayiota I. Pyla

#### Associate Professor

Her research has an interdisciplinary scope and focuses on two areas: a) the history and the theory of modern architecture and urbanism, especially in the Eastern Mediterranean region; and b) the interrelated discourses of modern architecture, development and environmentalism.

#### Andreas L. Savvides

#### Assistant Professor

Andreas Savvides is interested in sustainable design and development practices leading to the densification and regeneration of underperforming and underutilized urban cores. His approach to the field looks at both the environmental and the cultural factors pertaining to sustainable urban design and development with a focus on transit oriented development.

#### Socrates Stratis

#### Assistant Professor

His research interests are concentrated on the horizontal approach between architecture and urbanism, and between research and practice:

- Process and methodology of architectural design in an urbanarchitectural scale. The relationship between analysis and design in a project based action.
- Documentation of driving forces that allow a horizontal analysis of relationships between building and the city; the issue of translocal.
- Alternative ways of mapping the city: relationships between space and time within the everyday life of the city; mobility issues and migration.

## **Contact Details**

## Postgraduate Programme Coordinator

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#### **Department Secretariat**

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# **Civil and Environmental Engineering**

The aim of the graduate programmes of the CEE Department is to promote scholarly research leading to discovery, learning and innovation according to international standards of excellence, in the broader discipline of CEE, as well as in related multi-disciplinary and interdisciplinary fields. The department's graduate programmes are research-oriented in order to support and strengthen the research and educational activities of the Department and the University. The research focuses on areas that serve the interests of Cypriot society, by identifying and providing solutions to local issues and by promoting opportunities for local development and for the improvement of life in Cyprus.

The Department admits students each year into its graduate programmes at the Master (M.Sc. and M.Eng.) and Doctoral (Ph.D.) levels, offering the following six graduate degrees:

- Master of Science (M.Sc.) in Civil Engineering
- Master of Engineering (M.Eng.) in Civil Engineering
- Master of Science (M.Sc.) in Environmental Engineering
- Master of Engineering (M.Eng.) in Environmental Engineering
- Doctor of Philosophy (Ph.D.) in Civil Engineering
- Doctor of Philosophy (Ph.D.) in Environmental Engineering

## Introduction

Civil and Environmental Engineering plays a significant role in building modern society. The field of civil and environmental engineering encompasses the design, construction, management and maintenance of the infrastructure on which society relies. In addition to the buildings in which we live and work, the roads and the bridges we use every day, society depends on civil and environmental engineers for providing clean water, energy, waste management and to protect the natural environment.

The Department of Civil and Environmental Engineering (CEE) provides high quality degree programmes at both undergraduate and postgraduate levels. These programmes emphasize fundamental principles that prepare young engineers concerned with the challenges of meeting society's needs in a rapidly changing environment. CEE students undertake investigation, research, planning and design in an academic environment that is based on cooperation between faculty, students, industry, research and professional organisations. The students study in a dynamic environment and have the opportunity to work with and learn from research teams at the forefront of knowledge.

## **Research Areas**

The major research areas of the CEE Department are the following:

- Materials and Mechanics
- Structural and Earthquake Engineering
- Construction Management
- Computer-Aided Civil Engineering
- Geomechanics
- Transportation Systems
- Management of Water Resources
- Environmental Fluid Mechanics
- Solid and Liquid Waste Management
- Environmental Pollution Control
- Environmental Management Systems

## **Financial Support**

The CEE Department supports several graduate students through scholarships, teaching assistantships, and research grants.

## Master Programmes (M.Sc., M.Eng.)

Graduate students at the Master level have the option to choose between two tracks of studies, leading to either a Master of Science degree (M.Sc.) or to a Master of Engineering degree (M.Eng.). A transfer between the two academic tracks is allowed only after an application by the student and approval by the Departmental Board. The Department also reserves the right to mandate a student transfer between the two academic tracks (from M.Sc. to M.Eng.) if the student's academic performance during the required M.Sc. research/thesis is unsatisfactory, and his/her advisor recommends it.

## MASTER OF SCIENCE DEGREE (M.Sc.)

The M.Sc. degree is awarded to graduate students of the Department of Civil and Environmental Engineering upon successful completion of the required number of courses and ECTS units according to the graduate programme of studies, and upon writing and presenting a successful defence of the M.Sc. thesis. The student is awarded either an M.Sc. degree in Civil Engineering, or an M.Sc. degree in Environmental Engineering depending on the research area of the student's thesis.

The minimum duration of the M.Sc. programme for fulltime students in Civil and Environmental Engineering is three semesters, including the summer between the two academic years. The maximum duration allowed for completion of the M.Sc. degree is eight semesters.

## Admission to the Master of Science Programme

Applicants to the M.Sc. programme must possess the equivalent of a B.Sc. degree in Civil and/or Environmental Engineering, or in a related field of science or engineering, from the University of Cyprus or other accredited institution or programme.

Candidates must submit an application to the Department of Civil and Environmental Engineering within the announced time limits. For details about the application procedure and the evaluation of the candidates, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general admission requirements, the Department requests a statement of purpose detailing the applicant's motivation, goals and objectives, an intended focus area and expectations from the graduate studies, other supportive documentation as evidence of the applicant's qualifications.

Applications are evaluated by the Graduate Committee of the CEE Department which makes suggestions to the Departmental Board for final approval of the selected candidates. Applicants to the Master programme are selected according to the following criteria, while the CEE Department reserves its right to fill only as many announced graduate student positions as the Department considers appropriate:

- Quality of the applicant's background in breadth and depth, and past performance in undergraduate or graduate studies
- Evidence of ability for original and innovative research in the proposed area of study
- Relevance of the proposed field of research to the interests of the Department, the University and the society
- Availability of graduate positions in the programme and the necessary infrastructure and resources to support the proposed M.Sc. research work
- Good knowledge of the English language

## **Programme of Studies**

The programme of studies at the University of Cyprus is based on the European Credit Transfer and Accumulation System (ECTS). The programme of study leading to the M.Sc. degree in Civil Engineering and M.Sc. degree in Environmental Engineering requires the completion of at least 110 ECTS of graduate course, seminars and research work beyond the Bachelors degree, distributed as follows:

## Coursework

56 ECTS

- Graduate courses in CEE related to the M.Sc. programme (32 ECTS)
- Graduate courses in/outside CEE programme (24 ECTS)
- CEE 610 Graduate Seminar (0 ECTS)

Thesis Research (CEE 680)	54 ECTS
TOTAL	110 ECTS

All courses in the first category (graduate courses in CEE, related to the M.Sc.) must be taken from the list of courses in the relevant field of studies (Civil Engineering or Environmental Engineering), as these are outlined in the table of departmental courses.

The course Independent Study (CEE 650 or CEE 651) falls under the second category of courses (graduate courses in/outside CEE field) and must have different research topic than the M.Sc. thesis. Students are allowed a maximum of 8 ECTS for the Independent Study course. Course selection outside the CEE department is allowed only upon approval by the student's academic advisor and the chairman of the CEE Graduate Studies Committee. It should be noted that the attendance of graduate seminars (CEE 610) organised by the Department is compulsory.

Students who have successfully completed graduate coursework as part of another graduate degree may transfer up to 16 ECTS towards their graduate degree, on condition that the courses they wish to transfer were not used towards the completion of another degree.

#### Master of Science (M.Sc.) Thesis

The M.Sc. degree requires the successful completion of an original research study and associated thesis. Students select a research topic in consultation with their advisor. Students must submit a thesis proposal to the academic advisor at least 2 semesters before the intended date of thesis defence. Students must submit their thesis to the Defense Committee appointed at least two weeks prior to the intended date of graduation. The intellectual merit of the thesis must be based on research findings by the M.Sc. candidate, distinguished clearly from the work of others, testifying to the candidate's personal contribution, and acknowledging support by others in or outside the University.

For more information on the procedure of submitting and defending the thesis, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

#### **Indicative Programme of Studies**

The following programme of studies for the Master of Science in Civil Engineering or in Environmental Engineering (M.Sc.) may be completed in 1.5 academic years, provided that students undertake their research during the summer months between the 2nd and 3rd academic semesters.

	ECTS
First Semester (Fall)	
3 graduate courses (3x8)	24
CEE 680 M.Sc. Research	6
Total	30
Second Semester (Spring)	
2 graduate courses (2x8)	16
CEE 680 M.Sc. Research	14
Total	30
Summer	
CEE 680 M.Sc. Research	20
Total	20
Third Semester (Fall)	
2 graduate courses (2x8)	16
CEE 610 Graduate Seminar	0
CEE 680 M.Sc. Research	14
Total	30

## MASTER OF ENGINEERING DEGREE (M.Eng.)

The degree of Master of Engineering (M.Eng.) in Civil Engineering, or Master of Engineering (M.Eng.) in Environmental Engineering is awarded to graduate students of the Department of Civil and Environmental Engineering upon successful completion of the M.Eng. programme of studies, depending on the nature of the graduate courses the student has completed.

The programme is structured as follows:

Coursework	80 ECTS
<ul> <li>Graduate courses in CEE related to the M.Eng programme (48 ECTS)</li> </ul>	l <b>.</b>
<ul> <li>Graduate courses in/outside CEE programme (32 ECTS)</li> </ul>	2
– CEE 610 Graduate Seminar (0 ECTS)	

Research Project (CEE 689)	10 ECTS
TOTAL	90 ECTS

All courses in the first course category (graduate courses in CEE, related to the M.Eng. programme) must be taken from the list of courses relevant to the degree sought (civil engineering, or environmental engineering), as listed in the department's course categories.
The course Independent Research (CEE 650 or CEE 651) does not count towards fulfillment of the required courses. Courses outside the CEE department may be selected, but only with the approval of the student's academic advisor and the chairman of the department's Graduate Studies Committee. The attendance of graduate seminars (CEE 610) is compulsory.

#### **Indicative Programme of Studies**

The following programme of studies for the Master of Engineering in Civil Engineering or in Environmental Engineering (M.Eng.) may be completed in 1.5 academic years, provided that students undertake their research project during the summer months between the 2nd and 3rd academic semesters.

	ECTS
First Semester (Fall)	
4 graduate courses (4x8)	32
Total	32
Second Semester (Spring)	
3 graduate courses (3x8)	24
CEE 689 Research Project	4
Total	28
Third Semester (Fall)	
3 graduate courses (3x8)	24
CEE 689 Research Project	6
Total	30

### **DOCTOR OF PHILOSOPHY DEGREE (Ph.D.)**

A graduate student is awarded a doctorate degree by the Department of Civil and Environmental Engineering upon completion of the required programme of study and successful writing and defence of a Ph.D. thesis. Depending on the research area of the thesis, the student is awarded either a Ph.D. in Civil Engineering, or a Ph.D. in Environmental Engineering.

### Admission to the Ph.D. Programme

The applicants to the Ph.D. programme must possess the equivalent of a B.Sc. or M.Sc. degree in Civil and/or Environmental Engineering, or in a related field of science or engineering, from the University of Cyprus or another accredited university.

Candidates must submit an application to the Department of Civil and Environmental Engineering within the announced time limits. For more information on the application procedure and the evaluation of the candidates, see the *Admission and Attendance Regulations* – *Application Requirements* on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, candidates are requested to submit a statement of purpose detailing their motivation, goals and objectives, an intended focus area and expectations from the doctoral studies, three letters of recommendation from academics familiar with their past work and future promise, as well as other supportive documentation as evidence of their academic qualifications.

Applications are evaluated by the Graduate Committee of the CEE Department and the selection criteria are the same as for the M.Sc. or M.Eng. programmes (see relevant paragraph above).

### **Programme of Study**

The programme of study leading to a Ph.D. in Civil or Environmental Engineering requires successful completion of at least 240 ECTS, through a combination of graduate courses and research work. The minimum length of study for full-time students is six academic semesters and the maximum allowable length of study is eight academic years.

The 240 ECTS required for the Ph.D. degree are distributed as follows:

Coursework	80 ECTS
<ul> <li>Graduate courses in CEE related to the Ph.D programme (48 ECTS)</li> </ul>	
<ul> <li>Graduate courses in/outside CEE programm (32 ECTS)</li> </ul>	ie
– CEE 610 Graduate Seminar (0 ECTS)	
Thesis Research (CEE 690)	160 ECTS
TOTAL	240 ECTS

All courses in the first category (graduate courses in CEE, related to the Ph.D. programme) must be taken from the list of courses relevant to the degree sought (civil engineering or environmental engineering), as listed in the department's course categories. The course Independent Research (CEE 650 or CEE 651) does not

count towards fulfillment of the required courses, and must be differentiated from the Ph.D. thesis research. A maximum of 8 ECTS of Independent Research may be credited towards the Ph.D. degree. Courses outside the CEE department may be selected with the approval of the student's academic advisor and the chairman of the department's Graduate Studies Committee.

Students who have joined the doctoral programme after successfully completing a relevant M.Sc. programme may be credited with a maximum of 56 ECTS based on graduate courses which they have successfully completed, and which may count towards fulfillment of the required 80-ECTS coursework. The maximum number of ECTS that can be credited to students with a graduate degree in other fields of study is 32. The transfer of ECTS is subject to the approval of the Departmental Board based on recommendations by the CEE Committee of Graduate Studies.

Students should select, in consultation with their advisors, the courses that will help them in the completion of their Ph.D. thesis. Graduate coursework outside the CEE department may be accepted subject to prior approval from the Department's Graduate Studies Committee and upon an application by the student signed by his/her advisor.

#### **Comprehensive Examination**

Admission to candidacy for the Ph.D. programme is granted when the student has satisfactorily passed a written comprehensive examination that evaluates fundamental ability and knowledge in civil or environmental engineering, as well as specialized knowledge and understanding of the intended research area.

The comprehensive examination will cover three areas of study with questions set by at least three faculty members. Scoring will be equally weighted for the three areas. The comprehensive examination lasts four hours and a total score of at least 60% is required.

#### **Dissertation Proposal**

Doctoral students must prepare a brief written proposal of their intended doctoral research, and make a comprehensive oral presentation on the proposed work that demonstrates a sound understanding of the dissertation topic, the relevant literature, the techniques to be employed, the issues to be addressed, and the work completed to-date. The written proposal must be delivered to the candidate's doctoral examination committee and a representative of the Department's Graduate Studies Committee at least two weeks before the date of examination. The oral presentation is given before a three-member Dissertation Committee and the graduate committee representative.

#### **Doctoral Dissertation**

The doctoral degree requires the successful completion of original research work and a thesis. The doctoral candidate selects a research topic in collaboration with his/her academic advisor.

For further information on the doctoral thesis see the *Admission and Attendance Regulations – Application Requirements* on page 16, or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

The doctoral dissertation must address current and valid scientific and/or technical issue(s) primarily through fundamental research, leading to new scientific and/or engineering knowledge. Applied research and development aspects, leading to a prototype or an application of this basic research, may also be included as a secondary component of the dissertation. The research must be novel and original, and of the highest scholarly standards, qualifying it as acceptable for publication in international academic journals.

The dissertation must be based on significant research findings by the doctoral candidate, distinguished clearly from the work of others, testifying to the candidate's personal contribution and scholarship, and acknowledging support by others in or outside the University. In addition, the broader impacts of the research must also be highlighted in the dissertation, in terms of opening new scientific or engineering areas or issues, and generating new technical applications and innovations. Broader impacts also must be indicated in promoting learning innovation, education at all student levels and training of the workforce; involving underrepresented groups in science and engineering; establishing physical infrastructure (laboratory resources, software programmes, etc) and virtual resources (centres, networks, etc); setting dissemination plans through scholar publications and presentations, and outreach through the media to the public, etc; and indicating societal implications of the work, including public health and safety, security, environmental impacts, etc.

#### **Dissertation Defence**

Doctoral candidates are required to defend the originality, independence, and quality of research during an oral dissertation defence that is administered by an Examining Committee, which has at least five members.

A thesis defence process consists of three stages: (a) a public 45-60 minute presentation of the doctoral research work by the candidate, and a 30-minute public discussion, (b) a discussion on the thesis work with the examination committee, and (c) a concluding closed session of the examination committee in which doctoral work is assessed.

For more information on the procedures for the Comprehensive Examination, the Dissertation Proposal, the Doctoral Dissertation, the Dissertation Defence and the composition of the Committees, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

### **Graduate Level Courses**

#### **Categories of Graduate Courses**

Students must successfully take a number of courses related to their graduate programme of study, i.e., civil or environmental engineering, that will credit them with the required number of ECTS according to their programme requirements. The following tables indicate the two groups of courses that correspond to civil and environmental engineering, from which students may select the relevant courses.

#### **Civil Engineering**

- CEE 500 Engineering Applications with Software Development
- CEE 501 Computer-Aided Civil Engineering
- CEE 510 Advanced Building Technology
- CEE 511 Construction Management and Engineering
- CEE 512 Risk Analysis in Civil and Environmental Engineering
- CEE 513 Specifications and Conditions of Construction Contracts
- CEE 515 Advanced Topics in Construction Management
- CEE 520 Advanced Structural Analysis
- CEE 521 Structural Dynamics and Earthquake Engineering
- CEE 522 Advanced Issues in Earthquake Engineering
- CEE 523 Passive and Active Control of Structures
- CEE 526 Finite Element Analysis
- CEE 530 Advanced Topics in Structural Engineering

CEE 531 Rehabilitation and Strengthening of Structures

- CEE 532 Advanced Technology of Materials
- CEE 533 Local and Traditional Building Materials
- CEE 534 Liquid Transport Phenomena in Porous Media CEE 535 Theory of Plasticity
- CEE 536 Experimental Methods in Structural Engineering
- CEE 537 Rehabilitation and Strengthening of Structures II
- CEE 540 Behavior and Design of Reinforced Concrete Structures
- CEE 541 Reinforced Masonry Design
- CEE 542 Timber Design
- CEE 544 Prestressed Concrete Structures
- CEE 545 Nonlinear Structural Analysis
- CEE 550 Advanced Geotechnical Engineering
- CEE 551 Advanced Topics in Roadway Engineering
- CEE 553 Engineering Geology and Rock Mechanics
- CEE 555 Soil Dynamics and Technical Seismology
- CEE 556 Advanced Topics in Geomechanics
- CEE 560 Advanced Transportation Engineering
- CEE 575 Energy Efficiency of Buildings
- CEE 579 Coastal and Maritime Engineering

#### **Environmental Engineering**

- CEE 500 Engineering Applications with Software Development
- CEE 512 Risk Analysis in Civil and Environmental Engineering
- CEE 553 Engineering Geology and Rock Mechanics
- CEE 570 Water resources management
- CEE 571 Computational Hydraulics
- CEE 572 Groundwater Hydrology
- CEE 573 Design of Hydraulic Systems
- CEE 574 Environmental Geotechnology
- CEE 575 Energy Efficiency of Buildings
- CEE 576 Environmental Fluid Mechanics
- CEE 579 Coastal and Maritime Engineering
- CEE 580 Atmosphere and Air Pollution
- CEE 581 Environmental Risk Assessment
- CEE 582 Hazardous Waste Management
- CEE 583 Physicochemical and Biological Processes for the Treatment of the Wastewaters
- CEE 584 Advanced Topics in Environmental Engineering
- CEE 585 Experimental Methods in Water and Wastewater Analysis and Treatment
- CEE 586 Sustainable Built Environment
- CEE 587 Management of Renewable Sources of Energy
- CEE 588 Design of Experiments and Analysis of Experimental Data
- CEE 589 Environment and Health
- CEE 590 Advanced Topics in Environmental Engineering II CEE 594 Water Treatment
- CEE 596 Management of Renewable Sources of Energy

### **Course Descriptions**

The Department reserves the right to modify the following list of courses, to expand or discontinue course offerings, and to amend the contents of existing courses as needed in an effort to further improve the CEE curriculum.

The course listing provides a brief description of the topics covered in each course and the ECTS allocated to the course. After the number, name and description of each course, there is an indication of any prerequisites required and the number of ECTS the course carries. The ECTS are followed by three numbers that indicate the hours required for lectures, labs and homework (preparation and problem sets), respectively.

#### CEE 500 Engineering Applications with Software Development

Design and development of software applications for numerical simulations and solution of engineering problems. Numerical methods, algorithms, and methodologies for developing software solutions to engineering problems. Utilization of internet technologies in engineering. Term project: Numerical simulation and solution of practical engineering problems.

(8 ECTS: 3-0-10)\*

\* Note: 8 ECTS (number of ECTS units): 3-0-10 (3 hours of lectures per week, 0 hours of laboratory per week, 10 hours of study/homework per week).

#### **CEE 501 Computer-Aided Civil Engineering**

Analysis and design software for civil engineering. Application of advanced computer-aided design and analysis techniques with emphasis on structural engineering. Database models and systems in civil engineering. Engineering design projects/case studies using selected computerized numerical techniques. Fundamentals of geometric modelling and computer graphics for engineering simulation. Applications using CAD systems. Term project: Utilization of CAD/CAE in a practical application in CEE with emphasis on structural engineering.

(8 ECTS: 3-0-10)

#### **CEE 510 Advanced Building Technology**

Case studies and architectural design analysis derived mainly from structural engineering issues. Students will be introduced to architectural works with emphasis on structural, construction and environmental design aspects. A design project affected by structural and construction design aspects will be required from each student.

(8 ECTS: 3-0-10)

#### **CEE 511 Construction Management and Engineering**

Construction management techniques and construction engineering. Project, schedule and cost control, and resource management. Conflict resolution and negotiations. Information systems in construction management and use of relevant software packages. Elements of health and safety in construction. The construction industry an the law. (8 ECTS: 3-0-10)

#### **CEE 512 Risk Analysis in Civil and Environmental Engineering**

Advanced topics is a stochastic analysis in Civil and Environmental Engineering. Probability and statistics, data analysis, risk assessment and analysis, hypothesis testing, multifactored analysis, decision trees, neurofuzzy systems, regression, system reliability, and simulation of civil and environmental systems.

(8 ECTS: 3-0-10)

#### **CEE 513 Specifications and Conditions of Construction Contracts**

General issues of contract law (offer, acceptance, consideration, legal relations, terms and conditions, construction of contracts), conditions of construction contracts, business risk allocation, breach of contract and claims examination. Conditions of contracts for construction, conditions of subcontracts, design contracts, design and build contracts, public – private – partnership. Tender documents and procedures for awarding public work contracts, general issues related to technical specifications for construction works and disputed resolution procedures.

(8 ECTS: 3-0-10)

#### **CEE 515 Advanced Topics in Construction Management**

Advanced and contemporary topics in construction project management. The topics include, among other, offerings on Fully Integrated and Automated Project Processes (FIAPP), 3D/4D computer-aided modelling of construction processes, decision-support systems in construction, construction and the law, etc.

(8 ECTS: 3-0-10)

#### **CEE 520 Advanced Structural Analysis**

Theory and applications of classical and modern structural analysis. Stiffness and flexibility methods. Matrix formulations. Principle of virtual work. Condensation, substructuring and constraints. Thermal loads. Analysis of structures with material and geometric nonlinearities subjected to both static and dynamic loads. Elastoplastic analysis of frames and structures. P-Delta effects and large deformation theory. (8 ECTS: 3-0-10)

#### **CEE 521 Structural Dynamics and Earthquake Engineering**

Elements of analytical dynamics. Lagrange's equations. Dynamic response of discrete single- and multi-degree-of-

freedom systems. Vibration isolation. Modelling of damping in structures. Numerical evaluation of dynamic response. Earthquake response analysis. Frequency-domain method of response analysis. Dynamic response of continuous systems. Rayleigh's method. Dynamic response of seismically isolated structures.

(8 ECTS: 3-0-10)

#### **CEE 522 Advanced Issues in Earthquake Engineering**

Overview of seismic code provisions and their limitations. Advanced guidelines and current directions in earthquake engineering. Performance levels, criteria and limit-states. Evaluation and integration of seismological, geotechnical, structural and financial information. Magnitude, distance, duration, directivity and soil effects. Natural and synthetic ground motion records and scaling. Deterministic versus probabilistic approach. Ground motion attenuation relationships and probabilistic seismic hazard analysis. Static pushover methods. Strength reduction factor – ductility – period relationships. Dynamic methods and incremental dynamic analysis. Hazard curves. Structural and non-structural damage evaluation, casualties, downtime and monetary loss estimation. Performance-based earthquake engineering. Term project.

(8 ECTS: 3-0-10)

#### **CEE 523 Passive and Active Control of Structures**

Introduction, seismic isolation principles, history. Seismic isolation systems (elastomeric, sliding, rocking, others). Elastomeric isolation systems LRB (Low-damping Rubber Bearings), HRB (High-damping Rubber Bearings). Linear theory of base isolation. Sliding isolation systems. Energy dissipation systems. The principle of active structural control. Theoretical and practical considerations.

(8 ECTS: 3-0-10)

#### **CEE 526 Finite Element Analysis**

Basic principles of continuum mechanics and finite element methods. Formulation of finite element methods for analysis of linear steady-state and transient problems. Linear and nonlinear analysis in solid mechanics using isoparametric finite elements. Solution methods for static and dynamic analysis and eigenproblems. Convergence requirements and error estimations. Programming methods for finite element implementations. Implementation of a finite element analysis programme.

(8 ECTS: 3-0-10)

#### **CEE 530 Advanced Topics in Structural Engineering**

Advanced structural engineering topics that may include special topics in earthquake-resistant design and analysis, advanced static and dynamic structural analysis, special topics in reinforced concrete and steel structures design, foundation engineering, materials engineering and special methods of computational mechanics. (8 ECTS: 3-0-10)

#### **CEE 531 Rehabilitation and Strengthening of Structures**

Structural repair and strengthening types. Advanced material technology and methods for a structural repair and strengthening. Fiber reinforced polymer composites. Strength assessment of existing structures. Repair and seismic upgrade of reinforced concrete, wooden and masonry structural systems. Repair of non-structural elements. Strength assessment of repaired and upgraded structures, especially under earthquake excitations.

(8 ECTS: 3-0-10)

#### **CEE 532 Advanced Technology of Materials**

Concrete components, microstructure, and properties of portland cement. Heat of hydration and thermal stress development in concrete. Strength, fatigue, failure mechanisms, creep, shrinkage, and durability of hardened concrete. Special concretes: lightweight, heavy-weight, selfcompacting and high performance. Fiber reinforced concrete. Behavior and mechanical properties. Mechanics of fiber reinforced concrete. Fiber reinforced polymer composites. High performance materials.

(8 ECTS: 3-0-10)

#### **CEE 533 Local and Traditional Building Materials**

Building Stones: classification, factors affecting durability and weathering, preventive and remedial measures. Timber: conversion, seasoning, environmental decay and insect attack, preservation. Mortars and Renderings: plasters, limes, specification of plaster and render mixes for special applications. Ceramics: bricks. Adobe and Mud Bricks. Testing of natural building materials with reference to the estimation of their durability.

(8 ECTS: 3-0-10)

#### CEE 534 Liquid Transport Phenomena in Porous Media

Porous materials. Porosity: definition and measurement. Water in porous masonry materials. Flow in porous media: permeability. Unsaturated flow: extended Darcy equation, sorptivity, Sharp-Front Theory. Composite materials. Evaporation and Drying. Special topics in water transport: Air trapping, salt crystallisation and efflorescence, rain absorption on building surfaces, rising damp in walls, frost damage. (8 ECTS: 3-0-10)

#### **CEE 535 Theory of Plasticity**

Fundamentals of solid mechanics applied to the mechanical behavior of engineering materials. Yield and failure criteria. Elastic stress-strain relations. Plastic stress-strain relations: perfectly plastic materials, hardening materials. Metal plasticity. Plasticity for geomaterials and concrete. Limit analysis. Higher order theories. Finite elements implementation.

(8 ECTS: 3-0-10)

#### **CEE 536 Experimental Methods in Structural Engineering**

Introduction to experimental mechanics. Structural Models. Dimensional Analysis-Similitude Laws. Static and Dynamic Modeling. Design of an experimental setup. Strain Gauge Instrumentation. Force-Displacements-Velocity-Acceleration-Pressure-Temperature Transducers. Non-destructive testing. Data Acquisition Systems. Accuracy-Reliability-Statistical Analysis of Experimental Data. Experimental testing. (8 ECTS: 3-0-10)

#### CEE 537 Rehabilitation and Strengthening of Structures (II)

Fiber reinforced polymer composites. Repair and seismic upgrade of reinforced concrete, wooden and masonry structural systems. Repair of non-structural elements. Strength assessment of repaired and upgraded structures, especially under earthquake excitations.

(8 ECTS: 3-0-10)

#### **CEE 540 Behavior and Design of Reinforced Concrete Structures**

Behavior, analysis and design of reinforced concrete elements and structures. Reinforced concrete materials. Advanced topics in R/C design. Behavior under cyclic and reversed loading. Earthquake resistant design of R/C structures. Seismic rehabilitation.

(8 ECTS: 3-0-10)

#### **CEE 541 Reinforced Masonry Design**

Building design; masonry materials; masonry assemblages; reinforced beams and lintels; walls under out-of-plane loads; loadbearing walls under axial load and out-of-plane bending; shear walls; masonry veneer and cavity walls; connectors; construction considerations and details; design of loadbearing single-story masonry buildings. The design concepts will be focused on ultimate strength (LRFD) design and the Eurocodes. (8 ECTS: 3-0-10)

#### **CEE 542 Timber Design**

Behavior of timber structures under gravity loads and lateral forces; properties of wood; structural glued laminated timber; beam design; columns subjected to axial forces and combined bending and axial forces; wood structural panels; horizontal diaphragms; shearwalls; wood connections. The design concepts will be focused on ultimate strength (LRFD) design and the Eurocodes.

(8 ECTS: 3-0-10)

#### **CEE 544 Prestressed Concrete Structures**

High-strength concretes and steels for prestressed concretes. Behavior and design of prestressed concrete structures under bending moment, shear, torsion and axial load effects. Pretensioning and post-tensioning. Design of continuous prestressed concrete beams, frames, slabs, and shells. Continuity in precast, pre-stressed systems and design of connections. Time-dependent effects and deflections of prestressed concrete structures. Applications to the design and construction of bridges and buildings using prestressed concrete.

(8 ECTS: 3-0-10)

#### **CEE 545 Nonlinear Structural Analysis**

Theory, modelling and computation for analysis of structures with material and geometric nonlinearities. Sources of nonlinearity. Modelling of inelastic materials and members. Concentrated and distributed plasticity models. Nonlinear solution methods. Limit analysis of structures, collapse mechanisms, static and kinematic theorem. P-delta and large deformation theory. Analysis of stability. Load and displacement-controlled static pushover methods. Applications to frame stability and performance-based seismic design. Term project.

(8 ECTS: 3-0-10)

#### CEE 550 Advanced Geotechnical Engineering

Constitutive laws for geotechnical materials. Advanced treatment of topics in soil mechanics, including state of stress, consolidation and settlement analysis, shear strength of cohesionless and cohesive soils, and slope stability analysis. Advanced aspects of soil property measurement with application to analysis and design. In-situ testing and lab methods in geotechnical engineering. Interpretation and application of in-situ tests. Soil improvement and reinforcement methods. Geosynthetics and earth structures. Case studies of geotechnical and geoenvironmental problems. Numerical methods in geotechnical engineering. Finite element analysis of earth structures. (8 ECTS: 3-0-10)

### CEE 551 Advanced Topics in Roadway Engineering

Earthworks for road construction. Volume/cost estimation for earthworks. Methods of applicable lengths and average surfaces. Diagram of earthwork movement. Lines of distribution. Optimisation of line of distribution. Calculation of distance and cost for earthworks transport. Principles for roadway pavement design. Soil classification. Transport loads. Roadway construction material. Elements of transportation engineering. Ground, underground and overpass transport nodes. Surveying, plans and sections. (8 ECTS: 3-0-10)

#### **CEE 553 Engineering Geology and Rock Mechanics**

Composition and properties of rocks and soil, geologic processes, geologic structures and engineering consequences, natural and artificial underground opening. Influence of geologic origin and history on the engineering characteristics of soils and rocks. Application of geology in exploration, design, and construction of engineering works. Strength and deformability of intact and jointed rock, in-situ stresses, lab and field methods. Terrain analysis and site investigation; civil engineering facility citing. Rock slopes; stability and reinforcement; foundation on rocks. Seismic zonation for ground motions and soil liquefaction potential, geotechnical aspects of municipal and hazardous waste disposal. (8 ECTS: 3-0-10)

#### **CEE 555 Soil Dynamics and Technical Seismology**

Behavior of soil under dynamic and cyclic loading. Elements of technical seismology. Wave propagation in soils. Dynamic properties of soils. Measurements of soil parameters in the laboratory and in-situ. One-dimensional wave propagation, reflection and refraction, propagating and stationary waves, the viscous-damping analog, resonance. Seismicity. Influence of soil conditions on site response. Seismic wave propagation through soil deposits. Vibrations of surface and embedded foundations. Seismic response of piles. Failure criteria for foundations. Structure-foundation-soil interactions. New developments in soil dynamics and geotechnical earthquake engineering.

(8 ECTS: 3-0-10)

#### **CEE 556 Advanced Topics in Geomechanics**

Advanced topics in analysis and design of geotechnical projects. Elements of geology and rock mechanics. Limit Analysis. Computational geomechanics with applications of finite element analysis in special geotechnical engineering topics. Individual project.

(8 ECTS: 3-0-10)

#### **CEE 560 Advanced Transportation Engineering**

Design of transportation facilities based on operational capacity, site constraints, and safety considerations. Modern planning, economics, and management approaches to transportation activities. Management and control of vehicle flows and fleets. Traffic safety and injury control. Advanced surveillance, navigation, communication, and computer technology to monitor, analyze, and improve the performance of transportation systems. Operational planning and management of the highway transportation system. Urban transportation systems. Analysis and evaluation of mass transit systems. Application of micro/macro-economic concepts to transportation systems. Integrated treatment of analytical methods and technologies for the management of transportation facilities over their life.

(8 ECTS: 3-0-10)

#### **CEE 570 Water Resources Management**

Control of water resources by natural system functions, user actions, and influence of social, economic, and political institutions. Water resource policies. Case studies (e.g., flood/drought management). (8 ECTS: 3-0-10)

(0 LC13. 5-0-10)

#### **CEE 571 Computational Hydraulics**

Computer applications in hydraulic engineering with emphasis on iteration techniques and finite increment methods applied to open channel flow profile analysis; analysis of flow through spillways, bridge waterways, culverts, and similar structures. (8 ECTS: 3-0-10)

#### **CEE 572 Groundwater Hydrology**

Importance and occurrence of ground-water; chemical and physical properties of the groundwater environment; basic principles of ground-water flow; measurement of parameters; pump test design and analysis; transport of contaminants; use of computer models for the simulation of flow and transport problems. Assessment methodologies for dealing with contaminated land and related subjects, e.g. risk assessment. (8 ECTS: 3-0-10)

#### CEE 573 Design of Hydraulic Systems

Design of Water Supply and Sewage Systems: Drinking water quality. Design flow estimation. Population forecasting. Main water sources. Water intakes. Water conveying and containment systems. Pump systems - operating points, similarity. Pump cavitation. Reservoir balance. Design of water distribution networks. Appurtenances and special devices of networks. Waterhammer and other transient phenomena. Wastewater and stormwater collection systems - design flows, general layout, hydraulic computations. Pipe materials, quality issues. Design of Irrigation and Drainage Systems: Origin and quality of irrigation water. Soil properties, soil moisture. Flow equation, infiltration. Plant water demandsevapotranspiration, photosynthesis. Rainfall, water balance in the root zone. Design flows. Distribution systems - surface irrigation, spraying, drip irrigation; general layout, hydraulic computations. Economic optimisation. Drainage and flood control.

(8 ECTS: 3-0-10

#### **CEE 574 Environmental Geotechnology**

This course teaches students what environmental concerns to expect when planning construction projects, investigating sites and overseeing construction. Topics discussed include clay mineralogy, soil-water-contaminant interaction process, chemical transport through soils, hydraulic conductivity, diffusion and attenuation mechanisms, interfacial tension and capillarity, geo-environmental site characterization techniques, soil remediation technologies.

#### (8 ECTS: 3-0-10)

#### **CEE 575 Energy Efficiency of Buildings**

Basic concepts of energy efficiency in buildings, common methods for building energy analysis; two- and threedimensional steady-state and transient conductive heat transfer together with convection and radiation as applied to building materials and geometries; minimum energy efficiency requirements, insulating materials, energy efficient technologies and design for buildings; passive cooling and heating, building energy simulation, building energy audits, building energy efficiency standards, building energy codes in Europe and Cyprus; assessment of building energy performance, case studies of buildings (housing and residential, office and commercial, institutional and others). (8 ECTS: 3-0-10)

#### **CEE 576 Environmental Fluid Mechanics**

Introduction to environmental flows. Brief overview of the basic transport mechanisms in the water and atmosphere (convection, molecular and turbulent diffusion, dispersion).

Mixing and dispersion in 2-D systems. 4/3 Law; analytical solutions. Retention times.

Stratified flows: fundamentals, Boussinesq approximation, momentum jets and buoyant plumes.

Characteristics of jets and buoyant plumes, multiple interacting jets and plumes, influence of environmental conditions.

Elements of geophysical fluid mechanics: large-scale flows, coriolis effect.

(8 ECTS: 3-0-10)

#### **CEE 579 Coastal and Maritime Engineering**

Tidal theory, hydrographic surveying, maintenance dredging, wave theories, wave refraction, wave diffraction, wave reflection, breakwaters, coastal defence, marine construction, long sea outfalls, estuaries, sediment transport. (8 ECTS: 3-0-10)

#### **CEE 580 Atmosphere and Air Pollution**

Sources, causes and effects of air pollution, particulate emissions and control technologies, gaseous emissions and controls, emissions estimation and measurement, source sampling, pollutant monitoring, climatic change, acid rain, ozone layer, indoor air pollution.

(8 ECTS: 3-0-10)

#### **CEE 581 Environmental Risk Assessment**

Analysis and conceptions of risks, the uses of risk analysis, the structure of environmental risk assessment, hazard identification, studies and measurements of effects, categories of evidences, risk characterization, fate of pollutants in the environmental media, physicochemical and biological

processes, environmental models, variability and uncertainty analyses, sensitivity analysis, risk communication. (8 ECTS: 3-0-10)

#### **CEE 582 Hazardous Waste Management**

Definition and characterization of solid and hazardous waste (solid and liquid). Regulatory legislation. Waste minimization and resource recovery. Chemical, physical, and biological treatment processes, thermal processes. Disposal practices. Analysis and design of systems for treatment and disposal. Landfill design and site remediation. Transportation of hazardous wastes. Life cycle analysis. (8 ECTS: 3-0-10)

#### CEE 583 Physicochemical and Biological Processes for the Treatment of Wastewater

Introduction to wastewater treatment (terminology, relevant Laws and Regulations). Characterisation of wastewater (sampling methods, principles of the analytical methods, physical - chemical and biological parameters, toxicity tests, aggregate parameters: TOC, DTOC, BOD5, COD, SCOD). Description of the various kinds of reactors. Physical processes (screening, solid reduction/removal, grit removal, flow equalisation, fat and grease removal, primary sedimentation, clarification, floatation, aeration). Chemical processes (chemical precipitation and coagulation, removal of P, N and heavy metals, chemical oxidation). Basic principles of the biological processes (suspended growth biological treatment processes, attached growth and combined biological treatment processes, anaerobic suspended and attached growth biological treatment processes). Advanced wastewater treatment (membranes, adsorption, gas stripping, ionexchange, advanced oxidation technology). Disinfection processes (basic principles, chlorination, ozonation, UV). Treatment, reuse and disposal of sludges (dewatering, stabilisation, aerobic – anaerobic digestion, composting, drying). Monitoring the treatment plant performance. (8 ECTS: 3-0-10)

#### **CEE 584 Advanced Topics in Environmental Engineering**

Advanced Wastewater Treatment. Control and Monitoring of Solid Waste Disposal Sites. Development of Management Systems for Selected Waste Streams. Energy Production from Biomass. Control and Monitoring of Industrial Emissions. Integrated Water Management Systems. (8 ECTS: 3-0-10)

#### CEE 585 Experimental Methods in Water and Wastewater Analysis and Treatment

Sampling, transport and preservation - laboratory analytical methods - quality assurance and quality control - water analysis (organoleptic methods, volumetry, nephelometry, inometry, spectrophotometry, chromatography, mass spectrometry) microbiological analysis - the physics/chemistry/biology of water. Water characterization (groundwater, surface water, seawater and brackish water, drinking water)/Industrial waste characterization/Urban wastewater characterization/ Industrial sludge characterization - treatability of wastewater (e.g., sedimentation, coagulation- flocculation (jar tests), oxidants demand, respirometry) - biomass for wastewater treatment - biological treatment/removal efficiency assessment (anaerobic digestion and co-digestion) - chemical treatment - removal efficiency assessment (UV/H2O2, homogeneous and heterogeneous photocatalysis) - toxicity tests. (8 ECTS: 3-0-10)

#### **CEE 586 Sustainable Built Environment**

Advanced aspects of environmental building design addressed in the context of the challenge for sustainable solutions in the development and operation of such systems in the future.  $\Delta$ he urban concept (from the building to the city), building physics, environmentally friendly materials, comfort (thermal, acoustic, optical), health (indoor and outdoor air quality), rational water usage, energy efficient systems and integration of renewable energies, integrated sustainable building design. (8 ECTS: 3-0-10)

#### **CEE 587 Management of Renewable Sources of Energy**

Forms and sources of energy, efficiency and losses by energy transform and transport, energy and society, energy sources – characteristics, properties and applicable technologies, applications and potential of renewable energy sources, systems for energy storage, photothermal and photoelectrical systems, geothermal systems of high, medium and low enthalpy, biomass and technologies for treatment of urban and rural waste for energy production- waste to energy plants, design, environmental and energy pros of waste closure, recycle and energy production.

(8 ECTS: 3-0-10)

#### CEE 588 Design of Experiments and Analysis of Experimental Data

Review of basic statistics for experimental errors; Formulation of the Parameter Estimation Problem (Algebraic Equation Models, Differential Equation Models, The Objective Function, Statistical formulation); Computation of Parameters in Linear Models - Linear Regression (Linear Least Squares Estimation, Statistical Inferences on the Parameters and the Expected Response Variables, Multiple Linear Regression); Gauss-Newton Method for Algebraic Models (Formulation of the Problem, solution method); Other Nonlinear Regression Methods for Algebraic Models (Gradient Minimization Methods, Direct Search or Derivative Free Methods); Gauss-Newton Method for Ordinary Differential Equation (ODE) Models; Shortcut Estimation Methods for ODE Models (ODE models with Linear Dependence on the Parameters, Derivative Approach, Integral Approach): Practical Guidelines for Algorithm Implementation: Constrained Parameter Estimation (Equality and Inequality Constraints, Langrange Multipliers, The Kuhn-Tucker

Conditions); Statistical Inferences on the Parameters and the Expected Response Variables, Model Adequacy Tests; Design of Experiments (Factorial Experimental Design, Sequential Experimental Design for Precise Parameter Estimation and Model Discrimination); Recursive Parameter Estimation (Discrete Input-Output Models, Recursive Least Squares); Case studies. Individual project.

(8 ECTS: 3-0-10)

#### **CEE 589 Environment and Health**

Epidemiology and toxicology; environmental pollution and conditions which may be detrimental to health; health effects associated with the environment; managing the environment to improve health.

(8 ECTS: 3-0-10)

#### **CEE 590 Advanced Topics in Environmental Engineering II**

Advanced Wastewater Treatment. Control and Monitoring of Solid Waste Disposal Sites. Development of Management Systems for Selected Waste Streams. Energy Production from Biomass. Control and Monitoring of Industrial Emissions. Aquatic chemistry. Integrated Water Management Systems. (8 ECTS: 3-0-10)

#### **CEE 594 Water Treatment**

The basic processes involved in the decontamination and disinfection of water and wastewater with emphasis on advanced oxidation processes (AOPs) and physicochemical processes. Introduction to AOPs. Catalytic and non-catalytic wet air oxidation. Heterogeneous and homogeneous photocatalysis. Electrochemical methods in wastewater treatment. The use of ultrasound in water treatment. Water disinfection by ozone and light irradiation. Coagulation. Filtration processes. Water desalination by reverse osmosis. Process integration for water treatment. Case studies. (8 ECTS: 3-0-10)

#### **CEE 596 Management of Renewable Sources of Energy**

Forms and sources of energy; efficiency and losses by energy transform and transport; energy and society; energy sources – characteristics, properties and applicable technologies, applications and potential of renewable energy sources; systems for energy storage, photothermal and photoelectrical systems, geothermal systems of high, medium and low enthalpy, biomass and technologies for treatment of urban and rural waste for energy production- waste to energy plants, design, environmental and energy pros of waste closure, recycle and energy production. (8 ECTS: 3-0-10)

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#### CEE 610 Graduate Seminar

Participation in graduate seminars organised by the Faculty of Engineering in the fall semester.

(ECTS assigned by advisor)

#### **CEE 611 Graduate Seminar**

Participation in graduate seminars organised by the Faculty of Engineering in the spring semester. (ECTS assigned by advisor)

#### **CEE 630 Teaching in CEE**

For teaching assistants to recognize the educational value derived from satisfactory performance of assigned duties. (No ECTS credited)

#### **CEE 650 Independent Studies**

Individual study, research, or laboratory investigations under faculty supervision.

(ECTS assigned by the professor responsible for the research)

#### CEE 680 M.Sc. Research

Programme of graduate research leading to the writing and defence of an M.Sc. thesis. (ECTS assigned by the thesis advisor)

#### **CEE 689 Research Project**

Individual research project leading to the completion of the M.Eng. degree. (10 ECTS: 0-0-10)

#### CEE 690 Ph.D. Research

Graduate research within a Ph.D. programme. (ECTS assigned by the thesis advisor)

### **Research Interests of the Academic Staff**

### • Dimos C. Charmpis

### Assistant Professor

His research interests cover various topics of Computational Mechanics and aim toward the exploitation of innovative computing systems and numerical methods for the analysis and design of structures under static or seismic loading.

#### • Symeon Christodoulou Associate Professor

His principal research interests are in construction engineering and management, fully integrated and automated project processes, information technology, risk analysis and management of urban water distribution systems, artificial intelligence for civil engineering and construction applications.

### loannis loannou

#### Assistant Professor

His research interests have a particular emphasis on studies of water movement in porous construction materials and the associated problems of material durability.

### Despo Kassinos

### Assistant Professor

Her principal research interests are in the field of Environmental Science, Technology and Management and in particular in the areas of environmental monitoring, water and wastewater treatment, wastewater management systems, xenobiotics in the environment and environmental risk assessment.

### Petros Komodromos

#### Lecturer

His research interests include modern earthquake resistant design, computer-aided engineering and utilization of information technology in engineering.

#### • Konstantinos Kostarelos Assistant Professor

Recent research projects include use of surfactants to recover coal tar, in-situ treatment options for hexavalent chromium contamination, partitioning tracer testing for NAPL detection and estimation, and treatment of dredged sediments. Exciting new work was undertaken with a colleague to develop a new in-situ chemical sensor for geo-environmental applications.

#### Dimitrios Loukidis

#### Lecturer

His research interests include foundation engineering, computational geomechanics, constitutive modelling, unsaturated soil mechanics, pile dynamics, geotechnical earthquake engineering, plasticity theory, limit analysis, finite element analysis.

#### Marina Neophytou

#### Assistant Professor

Her principal research interests lie in the area of environmental fluid mechanics, in particular atmospheric pollution dispersion, environmental turbulence modelling, Computational Fluid Dynamics modelling at the local and urban scales, indoor air pollution, buoyancy-driven flows, building ventilation, sustainable building design.

# Stavroula Pantazopoulou Professor

Her research interests are in the mechanics of reinforced concrete structures, service life modelling, earthquake engineering, and seismic assessment and upgrading of existing structures with novel materials and technologies.

# Panos Papanastasiou Professor

His research interests and contributions are in the area of Applied and Computational Mechanics with applications in constitutive modelling of cohesive-frictional materials, micromechanics, fracture mechanics, environmental geomechanics, petroleum engineering and finite element analysis.

#### • Michalis Petrou Professor

His research interests are in the general area of civil engineering materials and experimental methods, including behavior of reinforced and prestressed concrete, self-compacting concrete, high performance concrete, fiber reinforced polymer composites, high performance steel, laboratory and field testing of structures, structural modelling, and repair/strengthening of structures.

#### • Panayiotis Roussis Assistant Professor

His research interests and contributions are in the area of Earthquake Engineering and Structural Dynamics, with a focus on the development and implementation of seismic-isolation and energy-dissipation systems, performance- based earthquake engineering of structural and nonstructural components, development of seismic codes and guide specifications, earthquake-simulator testing and development of nonlinear dynamic analysis software.

### **Contact Details**

#### **Department Secretariat**

Georgia Lasetta Tel.: 22892249 Fax: 22892295 e-mail: cee@ucy.ac.cy

### **Graduate Studies Committee**

CeeGradStudies@ucy.ac.cy

#### **Graduate Studies Coordinator**

Panayiotis Roussis Assistant Professor Tel.: 22892210 e-mail: roussis@ucy.ac.cy

http://www.ucy.ac.cy/cee-en

# **Electrical and Computer Engineering**

Electrical and computer engineering is a key discipline, at the heart of the technology frontier. It concentrates on the design and analysis of electrical, electronic, magnetic and optical devices, and the processing, control, and transmission of information and energy. The scientific disciplines used in electrical and computer engineering include the theory and application of electrical, electromagnetic and optical phenomena, systems theory, control theory, communications theory, information theory, and computational hardware and software.

The Department offers the following degrees:

- Master of Science (M.Sc.) and Doctoral Degree (Ph.D.) in Electrical Engineering
- Master of Science (M.Sc.) and Doctoral Degree (Ph.D.) in Computer Engineering



### Introduction

The Department of Electrical and Computer Engineering offers degree programmes in Electrical Engineering and Computer Engineering at both the undergraduate and postgraduate levels. These programmes emphasize fundamental principles that prepare students for leadership roles in a challenging and rapidly changing technological world. Research and innovation are ensured in an environment that fosters cooperation among faculty, students, industry and research organisations. The faculty in the Department of Electrical and Computer Engineering comprises experienced academics, who are leaders in their fields of expertise.

Members of the academic faculty of the Department collaborate with many research centres abroad and in the Faculty of Engineering at the University of Cyprus. The Department also hosts the KIOS Research Center for Intelligent Systems and Networks. KIOS is an inspiring environment for conducting high guality interdisciplinary research for the benefit of society and the promotion of a knowledge-based economy. It aims at contributing to the advancement of knowledge in the areas of computational intelligence and system design, and to apply these methodologies in the monitoring, control and management of large-scale complex systems. For detailed information regarding the Department and its postgraduate level degrees, please refer to the Department's detailed postgraduate studies guide and the Department's website.

### **Admission to Postgraduate Programmes**

The Department admits new postgraduate students each year at the Master and Doctoral levels. The number of new admissions fluctuates each year and depends on the needs of the Department and the quality of the candidates.

Applications are submitted to the Department and are considered for evaluation by the Postgraduate Studies Committee which makes suggestions to the Departmental Board for final approval. Upon acceptance to the programme, students must choose one of the faculty members as their supervisor, whom they should consult on academic and research issues.

For more information about Attendance Regulations for Postgraduate Programmes and Application Requirements, see page 16. The Department requires the following for admission:

- A completed application form, which can be found on the Department's website.
- A Curriculum Vitae indicating the student's education, academic and research experience, any publications, awards, etc.
- A short statement (at most two pages) outlining the reasons the candidate wishes to join the program, the candidate's professional and research experience, future goals, etc.
- At least three letters of recommendation from academic or professional advisors.
- Copies of representative publications, if any (no more than three).
- Copies of all degrees and transcripts. If applicable, a letter from the Registrar of the student's current university, verifying the expected graduation date (as described above).
- Copies of any other supporting material, such as exams, honors, awards, etc.

Applications may be submitted in either Greek or English.

#### **Evaluation Criteria**

The criteria for the evaluation of the candidates are the following:

- Academic background
- Research background
- Recommendation letters
- Additional qualifications

Familiarity with the English language is strongly recommended.

### **Graduate Degree Programmes**

The Department offers six graduate degrees:

- M.Sc. in Electrical Engineering
- M.Eng. in Electrical Engineering
- M.Sc. in Computer Engineering
- M.Eng. in Computer Engineering
- · Ph.D. in Electrical Engineering
- Ph.D. in Computer Engineering

### MASTER OF SCIENCE (M.SC.) AND MASTER OF ENGINEERING (M.ENG.) DEGREES

To be awarded the M.Sc. or M.Eng. degree, students must complete at least 90 ECTS of graduate-level coursework. For the M.Sc. degree these units are distributed as follows:

- At least 56 ECTS of graduate-level courses
- 4 ECTS of graduate-level seminars
- At least 30 ECTS of original research work, documented by an M.Sc. thesis

The following rules apply:

- A maximum of 8 ECTS of the total 56 ECTS for courses can be fulfilled by directed study courses (ECE 711-712).
- Of the 56 ECTS required, at least 38 must be fulfilled by graduate-level courses in the ECE Department.
- Students may enroll in graduate courses offered by another department in the University of Cyprus or any other accredited university. Units outside the Department must be approved by the Graduate Studies Committee, and are not to exceed 18 ECTS unless approved by the Department Board.
- To satisfy the 4 ECTS requirement for seminars, students must attend at least 25 departmental graduate seminar presentations during their time registered in the ECE graduate programme. The graduate seminar coordinator is responsible for assigning the final grade.

For the M.Eng. degree the units are distributed as follows:

- · At least 80 ECTS of graduate-level courses
- 2 ECTS of graduate-level seminars
- 8 ECTS from the individual study course (ECE723-724)

The following rules apply:

- A maimum of 8 ECTS of the total 80 ECTS for courses can be fulfilled by directed study courses (ECE 711-712).
- Of the 80 ECTS required, at least 48 must be fulfilled by graduate-level courses in the ECE Department.
- Students may enroll in graduate courses offered by another department in the University of Cyprus or any other accredited university. Units outside the Department must be approved by the Graduate Studies Committee, and are not to exceed 18 ECTS unless approved by the Department Board.

 To satisfy the 2 ECTS requirement for seminars, students must attend at least 12 departmental graduate seminar presentations during their time registered in the ECE graduate programme. The graduate seminar coordinator is responsible for assigning the final grade.

Students admitted into the M.Sc. or M.Eng. programme in Electrical Engineering are required to enroll in three of the six following core graduate courses:

- Random processes (ECE621)
- Digital Signal Processing (ECE623)
- Systems Theory (ECE631)
- Electromagnetic Waves and Antenna Theory (ECE648)
- Optics & Photonics (ECE645)
- Instrumentation & Sensors (ECE665)

Students admitted into the M.Sc. or M.Eng. programme in Computer Engineering are required to enroll in the three following core graduate courses:

- Advanced Computer Networks (ECE654)
- Advanced Computer Architecture (ECE656)
- Advanced Iterative Methods (ECE651)

Students admitted into the M.Sc. or M.Eng. programme in Electrical Engineering without having completed an undergraduate Electrical Engineering degree are expected to possess fundamental knowledge of basic concepts in the following areas: Signals and Systems, Electromagnetics and Microwaves, Circuits and Electronics. Similarly, students admitted into the M.Sc. or M.Eng. programme in Computer Engineering without having completed an undergraduate Computer Engineering degree are expected to possess fundamental knowledge of basic concepts in the following areas: Computer Architecture and Organization, Operational Systems and Algorithms. The Academic Advisor of each student should determine if, and what, additional coursework is required. This may require completion of up to a maximum of four additional courses from the Department curriculum, possibly at the undergraduate level, in the aforementioned areas.

### DOCTOR OF PHILOSOPHY (Ph.D.)

Graduate students become candidates for a Ph.D. degree after successfully taking the Comprehensive Examination. For the fulfillment of a Doctor of Philosophy Degree the requirements are:

- 1. Successful completion of 240 ECTS, corresponding to graduate courses (at least 56), seminars (at least 4), and research (at least 180). Students with an M.Sc. or equivalent degree may be partially exempt from the course requirements (up to 32 ECTS), after a recommendation by the Graduate Studies Committee, and subject to approval by the Department.
- 2. Passing the Comprehensive Examination by the end of the fifth semester of the programme.
- 3. Thesis Proposal. The candidate must submit a thesis proposal, outlining the proposed research project in a comprehensive and structured manner, at least 12 months before the intended date of defence.
- Doctoral Dissertation. The dissertation must include significant research findings and must contain elements which testify to the candidate's personal contribution.
- 5. Defence of the Dissertation. The defence of the dissertation takes place before the thesis committee.

The maximum duration allowed for a Ph.D. degree is currently eight (8) academic years. For more information about the requirements for completion of the Ph.D. degree, see page 16 and the detailed postgraduate level study guide of the Department.

### **Areas of Research**

Research in the Department of Electrical and Computer Engineering focuses on the following areas:

- 1. Power and Renewable Energy Systems
- 2. Biomedical Engineering
- 3. Signal and Image Processing
- 4. Electromagnetics, Microwaves, Antennas and Optics
- 5. Nanotechnology
- 6. Telecommunications Systems and Networks
- 7. Decision, Control and Automation Systems
- 8. Integrated Circuit Design
- 9. Digital Hardware Design and Test
- 10. High Performance Computing and Architectures
- 11. Computer Networks
- 12. Computational Intelligence and Robotics
- 13. Embedded Systems

### **Financial Support**

The University supports many graduate students through teaching assistantships, the number of which depends on the needs of the Department. Most doctoral students are financially supported through competitive research programmes of the Cyprus Research Promotion Foundation and the European Union. There are also some additional funding opportunities, information on which is available through the Office of Academic Affairs and Student Welfare.

Courses Offered	
	ECTS
ECE 621 Random Processes	8
ECE 622 Information Theory	8
ECE 623 Digital Signal Processing	8
ECE 624 Principles of Digital Communications	8
ECE 625 Wireless Communication Networks I	8
ECE 626 Image Processing	8
ECE 627 Machine Vision	8
ECE 628 Advanced Communication Systems	8
ECE 629 Fiber Optic Communication Systems and Networ	'ks 8
ECE 631 Systems Theory	8
ECE 632 Modern Decision and Control Systems	8
ECE 633 Security of Computer Systems and Networks	8
ECE 634 Introduction to Computational Intelligence	8
ECE 635 Optimization Theory and Applications	8
ECE 636 Systems Identification	8
ECE 643 Radio and Microwave Wireless Systems	8
ECE 645 Optics and Photonics	8
ECE 646 Advanced Antenna Theory	8
ECE 648 Introduction to Photonics	8
ECE 649 Electromagnetic Waves and Antenna Theory	8
ECE 652 Embedded and Real-Time Systems	8
ECE 653 Advanced Real-Time Systems	8
ECE 654 Advanced Computer Networks	8
ECE 655 Advanced Operating Systems	8
ECE 656 Advanced Computer Architecture	8
ECE 657 Computer-Aided Design for VLSI	8
ECE 658 Computer Systems' Performance Evaluation and Simulation	8
ECE 659 VLSI Design	8
ECE 660 VLSI Test	8
ECE 661 Logic Synthesis and Optimization	8
ECE 662 Physical Design Automation	8
ECE 663 Distributed Systems	8
ECE 664 Digital Design with FPGAs	8
ECE 665 Instrumentation and Sensors	8
ECE 667 Microwave Circuits	8
ECE 671 Neurophysiology and Senses	8
ECE 677 Optical Engineering and Photonics Laboratory	8

ECE 680 Power System Analysis	8
ECE 681 Power System Operation and Control	8
ECE 682 Renewable Sources of Energy - Photovoltaics	8
ECE 683 Power Electronics	8
ECE 684 Analysis of Power Generation Technologies	8
ECE 690 Fault Tolerant Systems	8
ECE 701, 704 Graduate Seminar M.Sc. and Ph.D.	4
ECE 705 Graduate Seminar for M.Eng. Students	2
ECE 711-712 Directed Study for M.Sc. Students I and II	8
ECE 713-714 Independent Study for M.Sc. Students I and II	4
ECE 721-722 M.Sc. Thesis I and II	15
ECE 723-724 Individual Study for M.Eng. Students	8
ECE 731-732 Ph.D. Comprehensive Examination I and II	0
ECE 751-752 Directed Study for Ph.D. Students I and II	8
ECE 753-754 Independent Study for Ph.D. Students I and II	4
ECE 761-764 Research Stages of Ph.D. Dissertation IA-IVA	30
ECE 765-768 Research Course of Ph.D. Dissertation IB-IVB	15
ECE 771-773 Writing Stages of Ph.D. Dissertation I, II and III	30
ECE 795 Pattern Recognition	8
ECE 799 Special Topics in Electrical and Computer Engineering	8

### **Course Descriptions**

#### ECE 621 Random Processes

Fundamentals of Random Processes: definition of random processes, continuous and discrete random processes, stationarity and ergodicity. Analysis and Processing of Random Signals: power spectral density, linear system response, optimum linear systems and the Kalman filter. Markov Chains: discrete and continuous Markov chains, classes of states, recurrence properties, and limiting probabilities. Introduction to Queuing theory: Little's theorem, the M/M/1 and M/M/k/k queues.

#### ECE 622 Information Theory

Shannon's Reliable Data Transmission Block Diagram. Entropy and Relations to Reliable Communication: Source and Channel Models. Data Compression: lossless source coding (prefix codes, Ziv-Lempel algorithm), performance limits for channel codes, performance limits. Channel Capacity: additive Gaussian channels, finite-state channels. Rate Distortion: Quantization, compression subject to fidelity criterion. Network Information Theory: multiple access channel, broadcast channel, relay channel, interference channel. The effect of uncertainty on Shannon's Reliable Data Transmission Blocks.

#### ECE 623 Digital Signal Processing

Discrete-time signals and systems; Fourier and Z-transform analysis techniques, the discrete Fourier transform; elements of

FIR and IIR filter design, filter structures; FFT techniques for high speed convolution; quantization effects.

#### **ECE 624 Principles of Digital Communications**

Elements of communication theory and information theory applied to digital communication systems. Amplitude and angle modulation (AM, FM, FDM). Sampling and quantization (PCM systems, TDM; digital modulation techniques). Maximum-Likelihood receivers. Information sources, source coding and channel capacity.

#### **ECE 625 Wireless Communication Networks I**

Introduction and overview. Characteristics of the mobile radio environment-propagation phenomena. Cellular concept and channel allocation, Dynamic channel allocation and power control. Modulation Techniques. Multiple Access Techniques: FDMA, TDMA, CDMA. Second-generation, digital wireless systems. Performance analysis: admission control and handoffs. 2.5G/3G mobile wireless systems: packet-switched data. Wireless LANs and personal-area networks. Wireless ad hoc networks. Wireless Sensor Networks.

#### ECE 626 Image Processing

Introduction to the principles of modern image processing; a brief review of signals and systems. Two-Dimensional (2-D) Signals and Fourier Transform; 2-D Z-Transform and Stability Testing; 2-D DFT, DCT, FFT; 2-D FIR Filter Design and Implementation; image processing basics; edge detection; rank order (median) filtering, motion estimation; image enhancement; image restoration; image coding; advanced topics.

#### **ECE 627 Machine Vision**

The course gives an overview of the basic principles of how machines understand and interpret visual information. Through lectures, students will learn the principles of image formation, characteristics and information mining, object recognition as well as motion and scene analysis. Moreover, students will be taught algorithms for object detection and recognition. They will also study the applications of the methods taught in the course in robotics and intelligent systems. The subjects covered include analysis of computer vision and object recognition applications, image formation and processing methods, Bayesian theory, application of statistical methods in object recognition, sensors and image capture machines, as well as man-machine interaction.

#### ECE 628 Advanced Communication Systems

Noise in communication systems, signal-to-noise ratio. performance of analog and digital communication systems under noise. Error probabilities and error control. Access techniques: FDMA, TDMA, CDMA, random access. Coding. Applications.

#### ECE 629 Fiber Optic Communications Systems and Networks

Optical Fibers, geometrical-optics description, dispersion, fiber loss, nonlinear optical effects, optical transmitters, LED, LASER, optical receivers, photodetectors, receiver noise, receiver sensitivity, optical amplifiers, dispersion compensation, multichannel optical systems, design and performance of optical systems, optical networks, switch fabrics, node architectures, routing and wavelength assignment techniques, grooming, multicasting and fault detection and restoration.

#### ECE 631 Systems Theory

Algebraic structures, review of vector spaces and linear algebra; topological structures; optimization; review of numerical analysis; state-space and input-output descriptions of systems; observability, controllability, and matrix fraction descriptions; observable, controllable canonical forms, and minimum realisations; linear quadratic regulator, pole placement, observers and compensators.

#### ECE 632 Modern Decision and Control Systems

A continuation of a first course in decision and control systems. Frequency response and state space methods for designing feedback control systems will be covered. Other practical control design issues that will be covered include digital control systems, robust control, adaptive control systems and intelligent control. Case studies for modern control systems design will be investigated.

#### ECE 633 Security of Computer Systems and Networks

Secure communication: Encryption and Decryption. Security policies. Cryptographic analysis and calculation complexity. Transposition, Substitution, and Product ciphers, Data Encryption Standard (DES). Public key cryptography: RSA and factorization, Elliptic key cryptography. Authentication methods and secure network protocols (IPsec, Kerberos). Key management. Access control mechanisms.

#### ECE 634 Introduction to Computational Intelligence

Introduction to the tools and methods in the design, analysis, optimization, and control of industrial systems. Topics include neural networks and their application in complex system modelling, fuzzy logic, information fusion methods, and optimization schemes. MATLAB used as the software platform. Topics in more details: Optimization Methods; Gradient Methods, Linear Programming, Constrained Problems and Lagrange Multiplier Method, Search Method, Ordinal Optimization, Genetic Algorithms, Application. Neural Networks: Basic concepts, Backpropagation algorithm, Competitive learning, Data clustering networks, Application in hierarchical modelling for complex systems, application examples. Knowledge representation methods.

#### ECE 635 Optimization Theory and Applications

Optimization for non-liner systems without constraints: Gradient based and Newton techniques, convex optimization. Optimization with constraints and Lagrange methods. Dynamic programming. Applications in engineering systems.

#### **ECE636 Systems Identification**

Random/stochastic variables and signals, stochastic signals and linear systems, properties and models of linear and nonlinear systems, nonparametric linear systems identification in the time and frequency domain, linear regression, properties of least squares methods, parameter estimation, experimental design: open- and closed-loop systems, data preprocessing, model order selection and validation, nonlinear systems identification: Volterra-Wiener models and block-structured models.

#### ECE 643 Radio and Microwave Wireless Systems

Antennas: Radiation from elementary dipoles, Patterns and the far field, Directivity, gain, efficiency, polarization, Monopoles and dipoles; patch antennas, Antenna arrays/beam-steering; Wireless Propagation and Links: Friis transmission equation, Diffraction and propagation over obstacles, Multipath propagation in urban environments, Antenna diversity; introduction to smart antennas, Link equation and link budgets, Radio/microwave links; Receivers: Receiver figures of merit (sensitivity, dynamic range, intersymbol interference, intermodulation, etc.), noise in cascaded systems, noise figure, noise temperature, Heterodyne and homodyne receiver architectures, Image-reject receivers; Wireless Systems: Fixed wireless access, Wireless cellular concept; personal communication systems, Satellite communications, GPS, Radars, Remote sensing and radiometers.

#### **ECE 645 Optics and Photonics**

Introduction to optics, optoelectronics, lasers and fiber-optics; light sources and propagation of light; lenses and imaging; ray tracing and lens aberrations; interference of light waves, coherent and incoherent light beams; modulators and propagation in waveguides and fibers; photons in semiconductors, semiconductor lasers, detectors and noise effects.

#### ECE 646 Advanced Antenna Theory

Fundamental Antenna Parameters: System aspects. Fundamental Electromagnetic Theorems: Reciprocity, duality, radiation integral. Wire and Mobile Communications Antennas: Dipoles, loops, ground-effects. Phased Arrays I: Linear & circular, base station antennas. Phased Arrays II: 2D-arrays, infinite-array model, multimedia satellite front-ends. Self-Impedance: Integral equations and moment methods. Mutual-Impedance: Induced EMF method. Aperture Antennas I: Equivalent currents, rectangular apertures, horn-antennas. Aperture Antennas II: Plane-wave expansion, slots, Babinet's principle. Broadband Antennas: Self-complementarity, spirals, log-periodic, Yagi-Uda. Integrated-Circuit Antennas: Patch and micromachined antennas, miniaturization. Beam Forming and Adaptive Arrays: Butler matrix, adaptive algorithms.

#### **ECE 648 Introduction to Photonics**

This course will cover the primary components of a fiber optic system, namely, optical fibers, emitters (semiconductor lasers and light emitting diodes), and photodetectors. It will also provide an overview of the characteristics and underlying physics of guided wave devices and optoelectronic integrated circuits.

#### ECE 649 Electromagnetic Waves and Antenna Theory

Review of Maxwell's equations and the wave equations. Solution of the wave equations in free space, wave velocity, wave impedance, Poynting's vector and polarization. Retarded potential functions, EM wave generation with a conducting current, the short uniform current dipole, the small uniform current loop, the radiated electric and magnetic fields. Radiation pattern and radiation resistance of the dipole and the loop. Radiation lobes, half power beamwidth, beam angle, beam efficiency, directivity, directive gain, power gain, antenna efficiency, frequency bandwidth, antenna input impedance. Short and long dipoles, folded dipoles, monopoles, ground plane considerations. Travelling wave antennas, broadband antennas, and frequency independent antennas. Spiral antennas, log periodic antennas, Array antennas. Yagi Uda arrays. Reflector antennas, feed configuration for parabolic antennas. Arrays, array factors, AM broadcast antenna towers, TV and FM antennas, satellite arrays. Antenna patterns, amplitude patterns, phase patterns. Feed methods, balanced feeds, coaxial feeds, waveguide feeds, impedance matching, stub tuners, baluns, and horns.

#### ECE 652 Embedded and Real-Time Systems

This course examines the various building blocks and underlying scientific and engineering principles behind embedded real-time systems. It covers integrated hardware and software aspects of embedded processor architectures, along with advanced topics such as real-time operation, resource/device and memory management, scheduling and resource allocation, hardware/software co-design and optimization. Through embedded FPGA prototyping boards, students will experiment with embedded architectures ubiquitous in mobile phones, portable gaming devices, PDAs, and many other embedded applications.

#### ECE 653 Advanced Real-Time Systems

Basic computer architecture and hardware elements relevant to the study of real-time issues; low-level input/output devices, interrupt controllers, and CPU cores; software design and specification methods such as flowcharts, state transition diagrams (finite state automata), and Petri nets; real-time kernels, including task scheduling, interrupt latency, and communication and synchronization of tasks; system performance.

#### ECE 654 Advanced Computer Networks

This course covers advanced fundamental principles of computer networks. Topics include network architecture, direct link networks, packet switching networks, internetworking, network protocols, flow control, congestion control, traffic management, resource allocation, pricing and applications. The course will also provide a systems and control perspective into communication networks research. It will emphasize fundamental systems issues in networking and survey a variety of techniques that have recently been used to address them, including queueing theory, optimization, large deviations, Markov decision theory, and game theory.

#### ECE 655 Advanced Operating Systems

Fundamental principles underlying design of distributed and multiprocessor operating systems; foundations of distributed computing systems; shared multiprocessor systems.

#### ECE 656 Advanced Computer Architecture

Design of high-performance uniprocessors. Advanced pipeline design, dynamic instruction scheduling, branch penalty reduction schemes.

#### ECE 657 Computer Aided Design for VLSI

Principles for the automated synthesis, verification, testing and layout of VLSI circuits, concentrating on the CMOS technology. Basic CMOS technology and design rules. Hardware modelling with VHDL. Algorithms and graph theory concepts for design automation. Logic-level synthesis and optimization of combinational and sequential circuits. Simulation. The physical design automation cycle and CMOS technology considerations. Timing analysis and verification. Fault modelling and testing.

#### ECE 658 Computer Systems Performance Evaluation and Simulation

Tools and techniques for analyzing computer hardware, software, and system performance. Benchmark programmes, measurement tools, performance metrics. Deterministic and probabilistic simulation techniques, random number generation and testing. Bottleneck analysis.

#### ECE 659 VLSI Design

MOS transistor theory, standard CMOS design (primitive and complex gates, transmission gates and tri-states), CMOS processing technology and layout design (silicon semiconductor technology, process steps, N-well/P-well/SOI processes, design layers, design rules, layout optimization), circuit characterization and performance estimation, CMOS logic structures, basic memory elements (design and optimization), design of VLSI combinational systems, VLSI testing, subsystem design (data-path and arithmetic units), memory (RAM, multi-port RAM, ROM, content-addressable).

Lab component: Usage of CAD tools for the design, layout, simulation, characterization, and performance estimation of digital VLSI circuits and systems.

#### ECE 660 VLSI Test

Comprehensive and detailed treatment of digital systems testing and testable design. Fundamental concepts as well as the latest advances are considered. Topics include fault modelling and simulation, combinational and sequential circuit test generation, memory and delay test, and design-fortestability methods such as scan and built-in self-test, and testing of embedded cores in systems-on-chip environments.

#### ECE 661 Logic Synthesis and Optimization

Advanced design of logic circuits. Theoretical foundations. Technology constraints. Computer-aided design tools and algorithms. Topics include two-level and multi-level synthesis and optimization of combinational circuits, sequential logic synthesis and optimization, timing optimization, technology mapping and verification.

#### **ECE 662 Physical Design Automation**

In-depth study of different analytical and heuristic techniques for physical design automation and optimization of VLSI circuits. Emphasis on VLSI design issues encountered in deep sub-micron and nanometer technologies. Theory of circuit layout partitioning and placement algorithms. Global, detailed, and over-the-cell routing. Performance driven layout.

#### ECE 663 Distributed Systems

This course covers the basic techniques developed to support networked computer applications, focusing on synchronization issues such as global state, election, interprocess communication, distributed mutual exclusion, distributed transaction mechanisms. It also covers consistency models and protocols and replication, and fault tolerance and cryptographic security, which are critical topics on distributed systems. Hence, fault models, reliable multicast, commit, checkpointing, recovery, access control, key management and cryptography issues are also covered.

#### ECE 664 Digital Design with FPGAs

This course provides students with fundamental FPGAs chip knowledge and its application to rapid digital system implementation using top down design in VHDL. Laboratory assignments give students learning experiences that enable them to accomplish the programme outcomes.

#### ECE 665 Instrumentation and Sensors

Signals and Noise, sensors and transducers, signal amplification, data acquisition and conversion, signal measurements and analysis, signal sources and practical issues.

#### **ECE 667 Microwave Circuits**

The wave equation; Losses in conductors and dielectrics; RF/microwave transmission lines; Transients on transmission lines; Planar lines (microstrip, stripline, coplanar waveguide); Scattering parameters; 3- and 4-port devices (power dividers/combiners, couplers, isolators & circulators); Coupled lines and devices; RF/microwave filters; Microwave active circuits (RF amplifiers, mixers, receiver front ends).

#### **ECE 671 Neurophysiology and Senses**

Advanced study of neurophysiology, sensory systems and higher functions. The physiology of excitable cells with emphasis on cellular mechanisms, synaptic integration, signal processing, and sensory/motor interactions in nervous systems. Computer simulations and hands-on experience with stimulating and recording neural signals.

#### ECE 677 Optical Engineering and Photonics Laboratory

After successful completion of the course, the student will have an experimentally based understanding of:(i)key optical phenomena (including reflection and refraction, polarisation, diffraction, interference and coherence), (ii)optical waveguiding in single-mode and multimode, (iii)optical fibre attenuation and dispersion, and the impact of these (and transmitter characteristics) on optical fibre-link performance, (iv)the basic operation of erbium-doped fibre amplifiers, (v)the construction and operation of fibre-ring lasers.

#### **ECE 680 Power Systems Analysis**

Basic and advanced concepts of power systems analysis. Students develop analytical skills to perform analysis of power systems; analyze balanced and unbalanced systems using symmetrical components; study transformers and per unit sequence models, transmission line modelling, power flow solution techniques, symmetrical faults, bus impedance and admittance matrices, power system stability.

#### ECE 681 Power Systems Operation and Control

Students learn the basics of power system generation, operation, and control, study system operation terms like economic dispatch, optimal power flow, unit commitment, automatic generation control (AGC), and learn how to apply these ideas to power systems. Dynamic and linear programming will be introduced and applied to solve power system problems. Production costing and fuel scheduling. State estimation in power engineering. Deregulation of the power industry, restructuring, and auctions. Advanced problems in power system operation and planning.

#### ECE 682 Renewable Sources of Energy – Photovoltaics

Introduction to renewable energy sources with main emphasis on photovoltaic (PV) energy conversion. Current state in Cyprus and potential. Types of photovoltaic systems. History of photovoltaic technology development. Current status: Technology, Policy, Markets.

Solar insulation. Short review of semiconductor properties. Generation, recombination and the basic equations of device physics. Efficiency limits, losses, and measurements. Physics of photovoltaic systems, including basic operating principles, design and technology, and performance of individual solar cells and solar cells systems.

Current fabrication technologies. Design of cells and modules. Other materials. Applications.

#### **ECE 683 Power Electronics**

Introduction to power electronics, switching converters, concept of steady state, ideal switches. Semiconductor devices, I-V characteristics and limitations. Analysis of basic dc-dc converters, buck, boost, buck-boost, SEPIC and Cuk converters, Voltage rectifiers, Power quality issues, single phase and three phase rectifiers Power factor correction circuits (PFC). Thyristor converters, single phase and three phase full bridge converters. Basic magnetic circuits, applications in converters. Analysis of converters with electrical isolation, forward, fly-back, push-pull and full-bridge converters. Synthesis of DC and low frequency sinusoidal AC voltage, bi-directional switching power pole, pulse width modulation, single and three phase inverters. Thermal management, EMI. Applications of switch-mode power supplies, Control of DC and AC motors, uninterruptible power supplies. Applications of power electronics in distributed generation systems, wind, solar and storage systems, in HVDC links. Introduction to Flexible AC Transmission Systems.

#### ECE 684 Analysis of Power Generation Technologies

This course will cover the analysis of power generation technologies. Students will be introduced to the fundamentals of thermodynamics such as the energy conservation principle, the first and second laws of thermodynamics, the steam cycles, the air cycles, the fossil fuels, the primary emissions and the greenhouse gas emissions. The European Commission (EC) energy policy for future power systems will be presented and analysis techniques of power plants will be described in detail including the analysis of combined cycle technology, advanced power technologies and nuclear power plants. Analysis techniques for alternative energy sources will be examined: distributed generation, renewable energy sources, EC environmental legislation and hydrogen economy. Students will be taught optimization algorithms and techniques for the technical, economic and environmental analysis of power systems. An on-site visit to a power station is part of the course.

#### **ECE 690 Fault Tolerant Systems**

The course offers an exposure to advanced concepts in the design of fault-tolerant digital systems, including combinational and dynamic systems. The course blends together techniques from coding and complexity theory, digital design, and control, automata and system theory. The topics addressed include: fault models and error manifestations, module and system level fault detection and identification mechanisms, techniques for reliability/availability assessment, coding in computer systems, reconfiguration techniques in multiprocessor systems and VLSI processor arrays, and software fault tolerance techniques.

#### ECE 701/704 Graduate Seminar

Seminars exploring current research and topical issues in electrical and computer engineering, focused on the general theme of innovation. Seminars are organised in blocks with related content, and are presented by prominent outside speakers as well as by faculty members and graduate students. Each seminar includes a presentation, in addition to wideranging discussions among speakers, faculty, and students. Discussions involve issues such as relations between presented research areas, requirements for further advances in the "stateof-the-art", the role of enabling technologies, the responsible practice of research, and career paths in engineering. The course requires participation in at least 25 seminar presentations. The graduate seminar coordinator is responsible for assigning a pass/fail grade.

#### ECE 705 Graduate seminars for M.Eng. students

The seminars explore current research and topical issues in electrical and computer engineering, addressed at the general theme of innovation. Seminars are organized in blocks with related content, and are presented by prominent outside speakers as well as by faculty members and graduate students. Each seminar includes a presentation followed by a wideranging discussion among speakers, faculty, and students. Discussions involve issues such as how the presented research areas are related, requirements for further advances in the "state-of-the-art", the role of enabling technologies, the responsible practice of research, and career paths in engineering. The degree programme requires successful attendance of at least 12 seminar presentations. The graduate seminar coordinator is responsible for assigning a pass/fail grade. Student participation in department-sponsored halfday and full-day events counts as 2 presentations and 1 presentation, respectively, toward the 12 required presentations.

#### ECE 711-712 Directed Study for M.Sc. Students I and II

Opportunity for individual study at the M.Sc. level, on topics related to electrical and computer engineering not covered by other courses offered by the Department. Students can initiate the arrangements and file a proposal, in consultation with a faculty member. Requires a final report describing the material examined and the work performed.

#### ECE 713-714 Independent Study for M.Sc. Students I and II

Opportunity for individual study at the M.Sc. level, on topics related to electrical and computer engineering not covered by other courses offered by the Department. Students can initiate the arrangements and file a proposal, in consultation with one of the faculty members. Requires a final report, describing the material examined and the work undertaken.

#### ECE 721-722 M.Sc. Thesis I and II

Graduate work leading to the completion of research and writing a Diploma Thesis. To be arranged by students and their Research Supervisor. Refer to the M.Sc. Diploma Thesis section of the graduate guide for additional information.

#### ECE 723-724 Project for M.Eng. EE and CE students

This course is mandatory for M.Eng. students and aims at the implementation of an individual project, which is required for the M.Eng. degree. The topic of the project is defined by the course instructor in collaboration with the student. This course has a duration of one semester, at the end of which the student must present/demonstrate the results of the project.

#### ECE 731-732 Ph.D. Comprehensive Examination I and II

Candidacy Examination. Ph.D. students are required to register for ECE 731 during the semester the examination takes place. In the event of failure, a student is permitted a second and final examination, to be taken within four months after the first examination. In this event, the student must register for ECE 732. Refer to the Ph.D. Candidacy section of the graduate guide for additional information.

#### ECE 751-752 Directed Study for Ph.D. Students

Opportunity for individual study at the Ph.D. level, on topics related to electrical and computer engineering not covered by other courses offered by the Department. Students can initiate the arrangements and file a proposal, in consultation with one of the faculty. Requires a final report describing the material examined and the work performed.

#### ECE 753-754 Independent Study for Ph.D. Students I and II

Opportunity for individual study at the Ph.D. level, on topics related to electrical and computer engineering not covered by other courses offered by the Department. Students can initiate the arrangements and file a proposal, in consultation with one of the faculty members. Requires a final report, describing the material examined and the work undertaken.

#### ECE 761-764 Research Stage of Ph.D. Dissertation IA, IIA, IIIA and IVA

Graduate research leading to a doctoral dissertation. To be arranged by the students and their Research Supervisor. Refer to the Doctor of Philosophy Degrees section of the graduate guide for additional information.

#### ECE 765-768 Research Course for Ph.D. Dissertation IB, IIB, IIIB and IVB

Graduate research leading to a doctoral dissertation. Can be taken in conjunction with other graduate courses. To be arranged by the students and their Research Supervisor. Refer to the Doctor of Philosophy Degrees section of the graduate guide for additional information.

#### ECE 771-773 Writing Stages of Ph.D. Dissertation

Programme of graduate work leading to the written doctoral dissertation. To be arranged by the students and their Research Supervisor. Refer to the Doctor of Philosophy Degrees section of the graduate guide for additional information.

#### **ECE 795 Pattern Recognition**

The aim of the course is to provide the students with a solid background in pattern recognition using a variety of methods. The following topics are covered: overview of probability and decision theory, Bayesian inference, linear models for regression and classification, nonlinear classifiers and neural networks, kernel methods and support vector machines, Bayesian networks and Markov random fields, principal and independent component analysis, mixture models and expectation maximization, and sampling methods.

#### ECE 799 Special Topics in Electrical and Computer Engineering

Presentation and discussion of special topics in electrical and computer engineering. Opportunity for graduate students and instructors to investigate a topic of common interest. Topic and responsible faculty announced each term, as subjects of interest are identified. These subjects are given independently or sequentially, as circumstances require.

### **Research Interests of the Academic Staff**

# Charalambos A. Charalambous Assistant Professor

High and Low Frequency Transient Phenomena in the Power Network, Power System Plant Modelling and Visualisation (for extreme operating conditions), Power Transformers Ferroresonance, Earthing and Control of DC and AC Corrosion, Effect of Climate Change on Power System Infrastructure, System Protection Schemes for Distributed Generation.

#### • Charalambos D. Charalambous Professor

Stochastic Systems, information theory, large deviations and optimization, with applications in robust control, estimation, decision, telecommunications, sensor networks.

#### Georgios Ellinas

#### Associate Professor

Optical Networks, Fault Detection, Fault Identification/Isolation, Fault Protection/Restoration, Integrated Routing, Switch Fabric Architectures, Optical Packet Switching, Optical Access Networks, Optical Network Security, Multicasting, Traffic Grooming, Optical Control Plane Design, WDM Network Architectures.

### • George E. Georghiou

### Associate Professor

Electromagnetic Field Measurements and Compatibility Testing; Utilisation of Electromagnetic Fields in Emerging Technologies (Transcranial Magnetic Stimulation, DNA Microchip Electrophoresis, Electronic Manipulation of Nanoparticles, Microwaves and RF for Heating and Food Processing); Plasma Processes and Gas Discharges (Plasma Sources at Atmospheric Pressure for Biomedical Applications, Utilisation of Gas Discharges for Plasma Production); Wireless Power Applications; Numerical Modelling of Multiphysics Problems (Development of Serial and Parallel Algorithms, Computational Electromagnetics Calculations); Renewable Sources of Energy.

#### • Julius Georgiou Assistant Professor

Low-power analog and asynchronous-digital application specific integrated circuits (ASICs), implantable biomedical devices, bio-inspired electronic systems, silicon-on-insulator design, sub-threshold circuits and systems, sensors and related systems.

# Christoforos Hadjicostis Associate Professor

Fault-tolerant dynamic systems; error control coding; reliable and trustworthy design of large-scale systems and networks; distributed control and monitoring; discrete event systems; communication and signal processing systems; algebraic system analysis.

### Stavros lezekiel

#### Associate Professor

Microwave photonics: high-speed laser diodes, photodiodes and modulators, mm-wave fibre radio systems, microwavephotonic packaging, lightwave measurements, all-optical microwave filters.

#### • Elias Kyriakides Assistant Professor

Research interests include the modelling and parameter estimation of synchronous machines, electric load forecasting, renewable energy sources, the security and reliability of the power system network, and the optimization of the teaching methods in power engineering using the Internet and modern learning techniques.

### • Maria K. Michael

### Assistant Professor

Computer-aided design and test automation for VLSI and embedded systems (including SoCs and multi/many-core based systems), testing and fault diagnosis, design for testability, microprocessor test, fault tolerance and reliability, test-based/semi-formal verification and timing analysis, decision diagrams and Boolean satisfiability, graph theory and algorithms for VLSI.

# Georgios Mitsis Lecturer

Nonlinear and nonstationary systems identification, bayesian model order selection for nonlinear systems, biosignal processing and mathematical modelling of biological systems, quantitative/systems physiology, cardiovascular and respiratory control mechanisms, cerebral hemodynamics and functional magnetic resonance imaging of the brain, glucose metabolism and control.

#### • Chrysostomos Nicopoulos Lecturer

Multi/many-core computer architecture, packet-based Networks-on-Chip (NoC), NoC router architectures for Chip Multi-Processors (CMP) and heterogeneous Multi-Processor Systems-on-Chip (MPSoC), on-chip interconnection architectures, three-dimensional (3D) system architectures, embedded system architectures, and VLSI digital system design.

### Christos Panayiotou

#### Associate Professor

Optimization and control of discrete-event systems with applications to computer communication networks, manufacturing systems and transportation networks.

# Constantinos Pitris Associate Professor

Optics and biomedical imaging. The underlying goal of this research is the introduction of new technologies in clinical applications for the improvement of the diagnostic and therapeutic options of modern health care systems to directly impact patient prognosis and outcome.

#### Marios Polycarpou Professor

Systems and control, adaptive and intelligent control, neural networks and computational intelligence, fault diagnosis and cooperative control.

### • Theocharis Theoharides

#### Assistant Professor

High-performance, Reliable and Energy-efficient Systems-on-Chip Design and Embedded Systems Architectures; Interconnection Architectures; Design of Hardware Architectures for multimedia, artificial intelligence, signal processing and machine vision applications; Computer Arithmetic; Low Power and Reliable Architectures and VLSI Design.

### **Contact Details**

#### Department Secretariat

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http://www.ucy.ac.cy/ece-en



# Mechanical and Manufacturing Engineering

The aim of the graduate programmes of the MME Department is to promote scholarly research leading to discovery, learning and innovation according to international standards of excellence, in both the broader discipline of MME, as well as in related multidisciplinary and interdisciplinary fields. The graduate programmes are research oriented in order to support and strengthen the research and educational activities of the Department and the University. The research focuses on areas that serve the interests of Cypriot society, by identifying and providing solutions to local issues and by promoting opportunities for local development and improvement of life in Cyprus.

The Department offers the following postgraduate degrees:

- Master of Science (M.Sc.) in Mechanical and Manufacturing Engineering
- Master of Science (M.Sc.) in Materials Science and Technology
- Doctor of Philosophy (Ph.D.) in Mechanical and Manufacturing Engineering
- Doctor of Philosophy (Ph.D.) in Materials Science and Technology

### Introduction

The Department of Mechanical and Manufacturing Engineering (MME) provides modern, high quality degree programmes at both undergraduate and postgraduate levels. These programmes emphasize fundamental principles and laboratory practice that prepare young engineers concerned with the challenges of continuing to meet society's needs in a rapidly changing environment. They undertake conceptualization, design, analysis, and investigation in an academic environment that is based on cooperation among faculty, students, industry, research, and professional organisations. Students are taught in a dynamic environment and have the opportunity to work with and learn from research teams at the forefront of knowledge.

The MME Department each year admits graduate students at the Master (M.Sc.) and Doctoral (Ph.D.) levels.

### **Research Areas**

Research in the MME Department is focused on a variety of areas, including:

- Energy systems
- Materials science and technology
- Mechanical systems modelling and controls
- Design, manufacturing, automation and robotics
- Micro- and nanotechnology
- Biomedical and biotechnology engineering
- · Computational mechanics of solids and fluids

At present, the Department offers graduate degrees in the areas of (i) Mechanical and Manufacturing Engineering and (ii) Materials Science and Technology. It is expected that the gradual increase in faculty and administrative personnel will allow additional postgraduate degrees to be offered in other Engineering disciplines.

### Mechanical and Manufacturing Engineering

Since the time of Hephaistos, Daedalos, Archimedes and Heron, Mechanical and Manufacturing Engineering has played a key role in serving the needs of modern society. Manufacturing Engineering focuses on inventing, designing and producing a wide variety of novel and useful products such as airplanes and spacecraft, robots and computer chips, sporting goods and medical instruments. Mechanical Engineering deals with studying, understanding and improving their operation. The field of Mechanical and Manufacturing Engineering is also the gateway for rising interdisciplinary areas of research, such as Nanotechnology and Biomedical Engineering, which promise to dramatically transform our lives and society in the near future. In addition to automobiles, air conditioners and water-bikes that we use and work with every day, society depends on Mechanical and Manufacturing Engineers to provide new technologies and tools for its needs in health, safety, information, industry, space exploration, transportation, agriculture and food, and power production, along with education, research and professional employment of young people.

### **Materials Science and Technology**

Materials Science studies the fundamental physical and chemical basis for the controlled combination of atoms to form new compounds, phases, and microstructures, as well as the characterization of the resulting structures and properties, aiming to understand the structure-processingproperties relationships in the final product. Materials Technology focuses on the synthesis of materials in useful quantities, and on the processing of materials into engineering products. Materials Technology draws heavily on the fundamental knowledge gained from materials science, and adapts the processes involved for the scale and requirements of the application. Materials Science and Technology is an interdisciplinary research area appearing in an autonomous and legible form. During the last few decades we have witnessed a significant revolution in the applications of novel materials. Some examples of this revolution include the explosive evolution of microelectronics, the extended use of synthetic polymers, the development of high-strength steels capable of operating at elevated temperatures, the development of new biocompatible materials as well as the applicability of highly transparent alasses used in optical-fiber telecommunications. Furthermore, the area of Nanotechnology, i.e., the Science and Technology of Nanostructures, has come to the fore at an international level, as a broad interscientific area of research and development.

### **Financial Support**

The University of Cyprus supports many graduate students through teaching assistantships, the number of which depends on the teaching needs of the Department. There are also additional funding opportunities, information on which is available through the Service of Academic Affairs and Student Welfare. A number of students can also be financially supported through research programmes.

### **Duration of Studies**

The minimum duration of the M.Sc. programme for fulltime students in Mechanical and Manufacturing Engineering is 3 semesters, including the summer between the two academic years. The maximum duration for the completion of the M.Sc. degree is defined by the University regulations (8 semesters).

### Master of Science Degree (M.Sc.)

### **Admission**

Applicants to the M.Sc. programme must possess the equivalent of a B.Sc. degree in Mechanical and/or Manufacturing Engineering, or in a related field of science or engineering, from the University of Cyprus or other accredited institution or programme.

Candidates must submit an application form to the Department of Mechanical and Manufacturing Engineering within the announced time limits. All applications are evaluated by the Graduate Studies Committee of the MME Department, which makes suggestions to the Council of the Department for final approval of the selected candidates. The applicants to the M.Sc. programme are selected according to the following criteria, while the MME Department reserves its right to fill only as many announced graduate student positions as the Department deems appropriate:

- Quality of the applicant's background in breadth and depth, and past performance in his/her undergraduate or graduate studies
- Evidence of ability for original and innovative research in the proposed area of study
- Relevance of the proposed field of research to the interests of the Department, the University and the society
- Availability of graduate positions in the programme and the necessary infrastructure and resources to support the proposed M.Sc. work

Students should select, in consultation with their advisors, the courses that will help them in the completion of their M.Sc. thesis. Most coursework eligible for the M.Sc. programme must be graduate-level courses. M.Sc. students are considered full-time if they are enrolled in 22 or more ECTS each semester.

### **Transfer of Credit and Student Exchanges**

Students admitted to the M.Sc. Programme of the Mechanical and Manufacturing Engineering Department from an accredited undergraduate or graduate programme

may, upon approval of their petition to the MME Graduate Studies Committee, transfer ECTS for graduate coursework they have successfully completed towards the requirements of the M.Sc. degree, according to the General Graduate Studies Regulations.

In the framework of inter-university student exchange programmes, M.Sc. students may, in agreement with their advisor and approval of their petition to the MME Graduate Studies Committee, attend courses and conduct research at an accredited university abroad.

#### **Master of Science Thesis**

An original research study and a thesis are required for the M.Sc. degree. The subject of the student's research is chosen in consultation with his/her advisor. The student must submit a thesis proposal at least two semesters before the intended date of graduation. Furthermore, one semester before the intended date of graduation, the student must make a progress presentation to the members of his/her committee.

For more information on the writing and presentation of the thesis, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

### MASTER OF SCIENCE (M.Sc.) IN MECHANICAL AND MANUFACTURING ENGINEERING

Graduate students are awarded the M.Sc. degree in Mechanical and Manufacturing Engineering after successfully completing the required programme of study and successfully defending and writing their M.Sc. thesis.

#### Structure of the Programme

The programme of study leading to the M.Sc. degree in Mechanical and Manufacturing Engineering requires the completion of at least of 120 ECTS in graduate level courses (beyond any taken for the Bachelors degree) and research work distributed as follows:

Compulsory courses	32 ECTS
<ul> <li>Course selection from Group A</li> </ul>	
Thesis research (MME 701-704)	60 ECTS
Graduate seminar I-IV (MME 501-4)	4 ECTS
Selection of at least one of the following:	24 ECTS
<ul> <li>Additional coursework outside MME or from Group A</li> </ul>	
<ul> <li>Additional coursework from Group B</li> </ul>	
– Independent Study (MME 505)	
TOTAL	120 ECTS

# MASTER OF SCIENCE (M.Sc.) IN MATERIALS SCIENCE AND TECHNOLOGY

Graduate students are awarded the M.Sc. degree in Materials Science and Technology after successfully completing the required programme of study and sucessfully defending and writing their M.Sc. Thesis.

#### **Structure of the Programme**

The programme of study leading to the M.Sc. degree in Materials Science and Technology requires the completion of at least 120 ECTS in graduate level courses (beyond any taken for the Bachelor degree) and research work distributed as follows:

Compulsory courses	32 ECTS
<ul> <li>Course selection from Group B</li> </ul>	
Thesis research (MME 701-704)	60 ECTS
Graduate seminar I-IV (MME 501-4)	4 ECTS
Selection of at least one of the following:	24 ECTS
<ul> <li>Additional coursework outside MME or from Group B</li> </ul>	
<ul> <li>Additional coursework from Group A</li> </ul>	
– Independent Study (MME 505)	
TOTAL	120 ECTS

#### Indicative Programme of Studies - M.Sc. Degree

	ECTS
First Semester	
Course I	8
Course II	8
Course III	8
Postgraduate Seminar I	1
Thesis Research I	5
Total	30
Second Semester	
Course IV	8
Course V	8
Course VI	8
Postgraduate Seminar II	1
Thesis Research II	5
Total	30
Third Semester	
Course VII or Independent Study	8
Postgraduate Seminar III	1
Thesis Research III	20
Total	29

Fourth Semester	
Postgraduate seminar IV	1
Thesis Research IV	30
Total	31

### **Doctor of Philosophy Degree (Ph.D.)**

Graduate students are awarded a doctoral degree by the Department of Mechanical and Manufacturing Engineering upon completing the required programme of study and successfully writing and defending their Ph.D. thesis.

#### Admission to the Ph.D. Programme

Applicants to the Ph.D. programme must hold the equivalent of a B.Sc. or M.Sc. degree in Mechanical and/or Manufacturing Engineering, or in a related field of science or engineering, from the University of Cyprus or other accredited university.

Candidates must submit an application form to the Department within the announced time limits. The evaluation criteria for candidates to the Ph.D. programme are the same as for applicants to the M.Sc. programme (see relevant paragraph above).

Familiarity with the English language is required for admission to the doctoral programme.

Students should select, in consultation with their advisors, the courses that will fulfill the requirements for their Ph.D. thesis. Most coursework eligible for the Ph.D. programme must be graduate-level courses. Ph.D. students are considered full-time if they are enrolled in 22 or more ECTS each semester.

#### **Transfer of Credit and Student Exchanges**

Students admitted to the Ph.D. programme in Mechanical and Manufacturing Engineering from an accredited undergraduate programme may, upon approval of their petition to the MME Graduate Studies Committee, transfer ECTS for graduate coursework they have successfully completed towards the requirements of the M.Sc. degree, according to the General Graduate Studies Regulations.

Students who have joined the doctoral programme after successfully completing a relevant M.Sc. programme can be credited with up to 60 ECTS.

ECTS for previously completed graduate work are credited only after approval by the Graduate Studies Committee of the MME Department, following a justified petition by the student. In the framework of inter-university student exchange programmes, Ph.D. students may, upon agreement with their advisor and approval of their petition to the MME Graduate Studies Committee, attend courses and conduct research at an accredited university abroad.

### **Comprehensive Examination**

Admission to candidacy for the Ph.D. programme is granted when the student has satisfactorily passed a written comprehensive examination.

For students with a B.Sc. degree, the comprehensive examination must be taken no later than three academic semesters subsequent to enrollment in the Ph.D. programme. For students with an M.Sc degree, the comprehensive examination must be taken no later than two academic semesters subsequent to enrollment in the Ph.D. programme.

#### Ph.D. Thesis

An original research study and a thesis are required for the Ph.D. degree. The subject of the students' research is chosen in consultation with their advisor.

#### **Dissertation Proposal**

Doctoral students must prepare a brief written proposal (no more than 20 pages) of their intended doctoral research, and make a comprehensive oral presentation before the Dissertation Committee and a representative from the MME Graduate Studies Committee that demonstrates a sound understanding of the dissertation topic, the relevant literature, the techniques to be employed, the issues to be addressed and the work completed to-date. The proposal must be made within a year after admission to candidacy (after passing the Comprehensive Examination) and at least one year before the intended date of defence.

### **Doctoral Dissertation**

The doctoral dissertation must address current and valid scientific and/or technical issue(s) primarily by fundamental research, leading to new scientific and/or engineering knowledge. Applied research and development aspects, leading to a prototype or an application of this basic research, may also be included as a secondary component of the dissertation. The research must be novel and original, and of the highest scholarly standards, qualifying it as acceptable for publication in international academic journals.

The dissertation must be based on significant research findings by the doctoral candidate, distinguished clearly from the work of others, testifying to the candidate's

personal contribution and scholarship, and acknowledging support by others in or outside the University. In addition, the broader impacts of the research must be highlighted in the dissertation, in terms of opening new scientific or engineering areas or issues, and generating new technical applications and innovations. Broader impacts must also be indicated in promoting learning innovation, education at all student levels and training of the workforce; involving underrepresented groups in science and engineering; establishing physical infrastructure (laboratory resources. software programs, etc.) and virtual resources (centres, networks, etc.); setting dissemination plans through scholarly publications and presentations, and outreach through the media to the public, etc.; and indicating societal implications of the work, including public health and safety, security, environmental impacts, etc.

#### **Dissertation Defence**

Doctoral candidates are required to defend the originality, independence, and quality of their research during an oral dissertation defence.

For more information about the procedure for the Comprehensive Exam, the Dissertation Proposal, the Doctoral Dissertation and the Dissertation Defence, see the *Admission and Attendance Regulations – Application Requirements* on page 16, or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

#### **Duration of Studies**

The minimum duration of the Ph.D. programme for full-time students in Mechanical and Manufacturing Engineering is defined by the University regulations. The maximum duration for the completion of the Ph.D. degree is also defined by the University regulations (16 semesters).

### DOCTOR OF PHILOSOPHY (Ph.D.) IN MECHANICAL AND MANUFACTURING ENGINEERING

Graduate students are awarded the M.Sc. degree in Mechanical and Manufacturing Engineering after completing the required programme of study, passing the Comprehensive Examination and successfully defending and writing their Ph.D. thesis.

#### Structure of the Programme

The programme of study leading to the Ph.D. degree in Mechanical and Manufacturing Engineering requires the completion of at least of 240 ECTS in graduate level courses (beyond any taken for the Bachelor degree) and research work distributed as follows:

Compulsory Courses – Course selection from Group A	48 ECTS
Thesis Research (MME 801-816)	160 ECTS
Graduate Seminar I-IV (MME 601-4)	8 ECTS
Selection of at least one of the following:	24 ECTS
<ul> <li>Additional coursework outside MME or from Group A</li> </ul>	
<ul> <li>Additional coursework from Group B</li> </ul>	
– Independent Study (MME 605)	
TOTAL	240 ECTS

### DOCTOR OF PHILOSOPHY (Ph.D.) IN MATERIALS SCIENCE AND TECHNOLOGY

Graduate students are awarded the M.Sc. degree in Materials Science and Technology after completing the required programme of study, passing the Comprehensive Examination and successfully defending and writing their Ph.D. thesis.

#### **Structure of the Programme**

The programme of study leading to the Ph.D. degree in Materials Science and Technology requires the completion of at least of 240 ECTS in graduate level courses (beyond any taken for the Bachelors degree) and research work distributed as follows:

Compulsory Courses - Course selection from Group B	48 ECTS
Thesis Research (MME 801-816)	160 ECTS
Graduate Seminar I-IV (MME 601-4)	8 ECTS
Selection of at least one of the following:	24 ECTS
<ul> <li>Additional coursework outside MME or from Group B</li> </ul>	
- Additional coursework from Group A	
– Independent Study (MME 605)	
TOTAL	240 ECTS

#### Indicative Programme of Studies – Ph.D. Degree

	ECTS
First Semester	
Course I	8
Course II	8
Course III	8
Postgraduate Seminar I	1
Thesis Research I	5
Total	30

Second Semester	
Course IV	8
Course V	8
Course VI	8
Postgraduate Seminar II	1
Thesis Research II	5
Total	30
Third Semester	
Course VII	8
Course VIII	8
Postgraduate Seminar III	1
Thesis Research III	15
Total	32
Fourth Semester	
Course IX or Independent Study	8
Postgraduate Seminar IV	5
Thesis Research IV	15
Total	28
Fifth Semester	
Thesis Research V	30
Total	30
Sixth Semester	
Thesis Research VI	30
Total	30
Seventh Semester	
Thesis Research VII	20
Thesis Writing I	10
Total	30
Eight Semester	
Thesis Research VIII	20
Thesis Writing II	10
Total	30

### **List of Graduate Level Courses**

Group A
MME 511 Transport Phenomena
MME 512 Advanced Engineering Thermodynamics
MME 513 Computational Fluid Mechanics
MME 514 Incompressible Fluid Dynamics
MME 515 Introduction to Parallel Computing for Engineers:
Architectures, Algorithms and Applications
MME 521 Computer-Controlled Systems
MME 522 Multivariable Feedback Control
MME 523 Signal Processing
MME 524 Modelling and Analysis of Dynamic Systems
MME 531 Continuum Mechanics

MME 532 Advanced Mechanics of Vibration
MME 533 Fundamentals of Engineering Acoustics
MME 534 Topics in Biomedical Ultrasound
MME 535 Medical Diagnostic Imaging
MME 536 Introduction to Magnetic Resonance
MME 538 Physiological Foundations for Engineers
MME 541 Manufacturing Process Automation
MME 542 Introduction to Robotics
MME 561 Lasers and their Applications
MME 562 Semiconductor Processing Technology
MME 564 Nanomechanics
MME 565 Physical Principles, Design and Fabrication of MEMs
MME 611 Statistical Theory and Modelling of Turbulent Flow
MME 621 Advanced Engineering Controls
MME 622 Non-Linear Dynamics
MME 623 Advanced Multi-Body Dynamics
MME 631 Non-Linear Acoustics
MME 641 Thermal Manufacturing Processes
Group B
MME 551 Characterization Methods of Delymors and Colloids
Mille 551 Characterization Methods of Polymers and Colloids
MME 552 Semiconductor Materials: Properties and
Applications
MME 553 Surface Engineering
MME 554 Materials Characterization Techniques

MME 555 Polymer Properties and Polymers in Medical Applications

MME 556 Fundamentals of Ceramics

MME 557 Metals and Alloys (New Course)

MME 563 Materials Physics

MME 566 Advanced Semiconductor Photovoltaic Devices

MME 651 Electronic and Magnetic Oxides

### **Course Descriptions**

It is anticipated that some minor amendments to the course offerings and content summaries provided here may occur in an effort to further improve the MME curriculum. After the number, name and description of each course, there is an indication of any necessary prerequisites.

Unless otherwise stated, all courses are credited with 8 ECTS.

#### MME 501-4 Graduate Seminar I-IV (1 ECTS)

Course must be continued over multiple semesters.

Obligatory participation of the students enrolled in the M.Sc. graduate programme of the Department of Mechanical and Manufacturing Engineering in all graduate seminars organised by the Department for four semesters. Open to M.Sc. students and advanced undergraduates as an elective.

#### **MME 505 Independent Study**

Graduate work on an independent academic project of the student's choice with consent of the advisor. May include theoretical, computational, experimental or combined work, relevant to a fundamental issue with applied and/or educational impacts. Includes preparation of comprehensive documentation and a presentation of the work to the MME Department. Open to M.Sc. students and advanced undergraduate students as an elective.

#### MME 601-4 Graduate Seminar I-IV (ECTS vary)

Course must be continued over multiple semesters.

Obligatory participation of the students enrolled in the Ph.D. graduate program of the Department of Mechanical and Manufacturing Engineering in all graduate seminars organised by the Department for four semesters. Open to Ph.D. students only.

In MME 604, besides the compulsory participation in all seminars during the 4th semester, students must submit written documentation (no more than 20 pages) followed by presentation on a topic relevant to those presented in the MME department. The topic chosen by the students need not be directly related to their research interests.

#### **MME 605 Independent Study**

Graduate work on an independent academic project of the student's choice with consent of the advisor. May include theoretical, computational, experimental or combined work, relevant to a fundamental issue with applied and/or educational impacts. Includes preparation of comprehensive documentation and presentation of the study to the MME Department. Open to Ph.D. students only.

#### MME 701-704 Thesis Research I-IV (M.Sc.) (ECTS vary)

Programme of graduate research leading to the defence and writing of M.Sc. thesis. Open to M.Sc. students only.

#### **MME 800 Comprehensive Examination**

(See paragraph on Comprehensive Examination)

#### MME 801-808 Thesis Research I-VIII (Ph.D.) (ECTS vary)

Programme of graduate research leading to the defence and writing of Ph.D. thesis. Open to Ph.D. students only.

#### MME 809-816 Thesis Writing (Ph.D.) (10 ECTS)

#### **MME 511 Transport Phenomena**

Conservation laws, with an emphasis on the similarities between the different mechanisms for the transport of heat, mass and momentum. Theory of molecular transport. Diffusion phenomena in stationary, flowing and unsteady processes. Mass diffusion in chemically reacting, multiphase and multicomponent systems. Computational techniques. Selected special topics and applications may include turbulent convective flows, combustion and materials processing. (*Prerequisites: instructor's consent*)

#### MME 512 Advanced Engineering Thermodynamics

Thermodynamic analysis of engineering systems, emphasizing systematic methodology for application of basic principles. Introduction to availability analysis. Thermodynamics of gas mixtures and reacting systems. Modern computational equations of state. Thermodynamics of condensed phases, including solutions. Thermodynamics of biological systems. (Prerequisites: instructor's consent)

#### **MME 513 Computational Fluid Mechanics**

This course is devoted to the numerical solution of partial differential equations encountered in engineering sciences. Finite difference and finite element methods are introduced and developed in a logical progression of complexity. These numerical strategies are used to solve actual problems in a number of actual engineering problems. Computer exercises are required to illustrate the concepts discussed in class.

(Prerequisites: knowledge of a computer language and advanced level courses in transport phenomena and continuum mechanics)

#### **MME 514 Incompressible Fluid Dynamics**

An introduction to graduate level fluid dynamics including dimensional analysis, Eulerian and Lagrangian descriptions, flowlines, conservation equations, governing equations of viscous fluid motion, exact solutions of Navier-Stokes and Euler equations, unsteady flows, laminar boundary layer theory, turbulence, separation, Stokes flow, vorticity dynamics, potential flow and surface flows.

(Prerequisites: fundamentals of thermodynamics and mechanics, knowledge of advanced mathematics, undergraduate courses in fluid mechanics)

#### MME 515 Introduction to Parallel Computing for Engineers: Architectures, Algorithms and Applications

Parallel architectures design, examples of parallel computers, fundamental communication operations, performance metrics, parallel algorithms for sorting, matrix problems, graph problems, fast Fourier transforms, dynamic load balancing, types of parallelisms, parallel programming paradigms, message passing programming in MPI, shared-address space programming in threads. Focus areas may cover unstructured mesh applications, turbulence and combustion, nanofluidics and molecular dynamics, industrial applications, climate modelling, atmospheric and oceanic global simulation, and interdisciplinary applications.

(Prerequisites: instructor's consent)

#### **MME 521 Computer-Controlled Systems**

Focus on design and control of mechanical systems, employing digital computers as real-time controllers. Mathematical difference models, Z-transforms, and sampled control techniques in the frequency and time domain. Design of discrete-time controllers by conversion from continuous-time or directly. Students use graphical programming (Matlab/Simulink) and instrumentation software (LabVIEW) to programme their control strategies developed in simulation, and to interface with hardware sensors and actuators in laboratory exercises: monitoring and control of meteorological signal station, computerized electrocardiograph monitor, controlled separation vessel in a chemical plant, and illumination control system for machine vision.

(Prerequisites: MME 321 or instructor's consent)

#### MME 522 Multivariable Feedback Control

This course extends basic undergraduate courses on control to multi-input multi-output linear systems. Concepts such as state space representation, controllability, observability, multivariable frequency response functions, zeros and poles are introduced. Design of controllers by pole and zero placement. Robustness as a means of dealing with uncertainty. Matlab course projects for modelling and controlling real case multivariable processes.

#### **MME 523 Signal Processing**

The aim of this course is to introduce students to modern signal processing techniques currently used to (a) decipher complicated processes in engineering and biological systems; (b) detect damage and monitor the health of engineering components and bio-engineering systems and; (c) characterise the intricacies of time-varying and non-linear systems. Techniques of signal analysis and synthesis based on Fourier Transform, Hilbert transform, time – frequency distributions, wavelet transform, and multi-resolution analysis are introduced through examples taken from the disciplines mentioned above.

#### MME 524 Modelling and Analysis of Dynamic Systems

The idea behind this course is to use a unified approach to abstracting real mechanical, fluid, and electrical systems into proper models in graphical and state equation form to meet engineering design and control system objectives. The emphasis is not on the mechanics of deriving equations but rather on understanding how the engineering task defines the modelling objectives that determine what modelling assumptions are appropriate. The bond graph language, which is a graphical power topology of a dynamic system, is taught to help students easily represent models of multi-energy domain systems. This then allows causality, as well as system analysis tools, to be used to determine the correctness of the modelling assumptions. Project-like problem sets are required to reinforce the theoretical concepts presented in the lecture. A final project on a topic of the student's research area will reinforce the concepts taught in this course.

(Prerequisites: Undergraduate-level technical mathematics and dynamics, English language or instructor's consent)

#### MME 531 Continuum Mechanics

Emphasis on the distinction between general principles that apply to all deforming materials and the specific constitutive assumptions that are made when modelling material behaviour. The course includes a brief review of the necessary mathematics and then proceeds to the kinematics of deformable media, the concepts of stress and stress transformations, and the general balance laws. The remaining course examines general constitutive theory and constitutive relations for selected materials that relate to structural, fluid dynamics, materials processing and materials handling. Also covered are exact solutions for bending and torsion: thickwalled pressure vessels, rotating disks, stress functions for twoand three-dimensional problems and bending and torsion of non-symmetric beams.

(Prerequisites: instructor's consent)

#### **MME 532 Advanced Mechanics of Vibration**

Engineering structures, in response to impact, wind, imbalance and any other load of time-varying nature, vibrate. This course aims to familiarise students with techniques of modelling and analysing both theoretically and experimentally vibrating structures. Topics offered: simple harmonic motion and forced vibration of single degree of freedom systems, derivation of equations of motion of systems with coupled coordinates using generalized coordinates and Langrange's equations, forced vibration analysis of multi-degree of freedom systems, theoretical and experimental determination of mode shapes, vibration analysis of continuous systems and introduction to structural modification as a means of controlling vibration levels. A combined experimental and computational course project.

#### MME 533 Biomedical and Industrial Applications of Engineering Acoustics

This course is an introduction to physical acoustics for engineering and science majors. It gives the physical basis for problems found in many engineering applications including biomedical ultrasound, room acoustics, noise control, and sonar. This course covers: plane waves in fluids, transient and steady-state reflection and transmission, refraction, strings and membranes, rooms, absorption and dispersion, spherical and cylindrical waves, radiation from baffled piston, and medical ultrasound arrays. The course includes laboratory sessions on ultrasound beams with usage of related equipment such as function generator, digital oscilloscope, power amplifier, and micropositioners. Sound pressure level measurements for noise control are also taken with an SPL meter.

#### **MME 534 Topics in Biomedical Ultrasound**

This course covers a variety of topics and applications in medical ultrasound and is targeted to engineers and students of natural sciences. Topics covered are: nonlinear acoustics, harmonic generation and shock waves; parametric array; medical imaging, nonlinear imaging techniques; bubble dynamics, cavitation, nonlinear equations of motion of spherical oscillating bubbles; thermal and mechanical applications of ultrasound in medicine; ultrasound-enhanced drug delivery.

#### MME 535 Medical Imaging - Diagnostic Ultrasound

This course covers the basic science and physics of diagnostic ultrasound. A short introduction to the relevant acoustics needed for ultrasound imaging is given first. It includes reflection and transmission, refraction, acoustic impedance, sound beams, arrays, beamforming, ultrasound propagation through tissue and blood, attenuation, scattering, and nonlinear properties of tissues. The current equipment technology is presented and explained. The following modes of imaging are covered: M-mode, B-mode, Doppler, Harmonic Imaging, and 3D imaging. Emphasis is also placed on ultrasound contrast agents and specifically imaging and quantification of tumor angiogenesis. The course includes a laboratory component that covers some of the topics above. In laboratory exercises, students use a modern diagnostic ultrasound scanner and also observe clinical examinations.

#### MME 536 Introduction to Magnetic Resonance

This course is designed for graduate students and senior undergraduates who seek an in-depth knowledge in Magnetic Resonance Imaging. It focuses on the principles and physics of nuclear magnetic resonance, imaging processing and reconstruction, hardware systems and instrumentation. It requires prior knowledge of simple and advanced mathematics, linear systems and image processing, as well as basic knowledge of electrical circuits. Integral to understanding such a diagnostic modality is some basic knowledge of radiography and physiology of major organ systems such as the cardiovascular and neurovascular, for which reference is made. The course will introduce students to some advanced imaging techniques and novel methods of MRI. The course covers the fundamentals of Magnetic Resonance, pulse sequences and image contrast, signal, noise and resolution, hardware and spectroscopy, the molecular environment and relaxation and spectroscopy and spectroscopic/multinuclear imaging. Advanced topics discussed include cardiac imaging, parallel imaging, frequency selective techniques, flow encoding, angiography, diffusion, elastography and MRI.

(Prerequisites: MME 103, MAS 041, MAS 043, ENG 104 or instructor's consent)

#### **MME 538 Physiological Foundations for Engineers**

This course recognizes and quantifies the role of electromechanical phenomena and manufacturing processes in biological organisms from the cellular to the organ level. Thermal, electro-mechanical, fluid-mechanical control mechanisms and their interrelations and interdependence with synthetic and regenerative mechanisms are discussed and evaluated in cells, tissues, organs and the human body through consideration and discussion of principles of physiology. At this level, the course attempts to introduce students to the design and implementation of medical devices, implants, prosthetics, exercise equipment and other biomedical engineering devices. Practical exercises include, among others, the design of an electrocardiogram, a pacemaker, drug infusion systems, etc. (*Prerequisites: MAS 043, MME 103, MAS 044, ENG 104 or instructor's consent*)

#### **MME 541 Manufacturing Process Automation**

In-depth study of the physical dynamics in the wider spectrum of manufacturing processes, assessing their potential for automation. Review of classical background in thermodynamics, fluids and mechanics together with dynamic systems and controls, in the context of analysis and design for automation of individual manufacturing processes. Modelling and control issues examined in comparative studies of metal cutting, forming, bulk deformation, joining, welding, casting, and sintering in processing of ceramic, semiconductor and composite material processing. Emphasis on new technologies such as rapid prototyping, microelectronics fabrication and nano-manufacturing, as well as on advanced, nonlinear, adaptive and multivariable control algorithms. Use of simulation (Matlab/Simulink) to assess and optimize the performance of processing systems. Research directions are explored through taxonomy of manufacturing processes, suggesting redesign for automation. Students integrate and demonstrate control of a process experiment in the laboratory, such as part inspection station, automated bottle labelling robotic cell, thermal control of welding with infrared feedback, or automated assembly with machine vision. They also undertake the complete, real-world design of an automated plant such as a bakery.

(Prerequisites: MME 321, MME 341 or instructor's consent)

#### **MME 542 Introduction to Robotics**

Broad review of theoretical and practical aspects of robotic manipulators and locomotion automata. Historical introduction to robotics through the arts and primitive technology, and anatomical and physiological analogies to the human body providing the context for principal concepts. Arm/leg configurations, statics, kinematics, dynamics, trajectory planning, control and navigation are examined together with hardware technology (end effectors, sensors, and machine vision), programming and applications. Current research directions in robotics are identified, as well as applications in modern industry, reinforced by illustrative videos. Emphasis on hands-on programming of a tabletop assembly robot with a vision system and walking robot prototypes in the laboratory. Robot demonstration projects in applications of the students' interest: building structures with block elements, navigating mazes and assembling puzzles, searching for parts with a variety of sensors, playing table games, checkers, pool and mini-golf against the robot, and graphically simulating the motion of an arm or mobile robot platform on the computer.

(Prerequisites: MME 221, MME 341 or instructor's consent)

#### MME 551 Characterization Methods of Polymers and Colloids

This course outlines different methods used in the characterization of "soft materials." Introduction to Polymers and Colloids. The techniques discussed are the following: Liquid adsorption chromatography (LAC) and size exclusion chromatography (SEC); Osmometry and viscometry; analytical ultracentrifugation (AUC), field flow fractionation (FFF) and capillary hydrodynamic fractionation (CHDF); dynamic mechanical analysis (DMA); scattering techniques: dynamic (DLS) and static (SLS) light scattering, Ä-ray and neutron scattering (SAXS, WAXS, SANS); microscopy techniques: transmission electron microscopy (TEM), scanning electron microscopy (SEM) and atomic force microscopy (AFM); methods used in determining glass transitions of polymers and mass spectrometry techniques used in polymer characterization. The course includes demonstrations and/or lab experiments.

(Prerequisites: instructor's consent)

#### MME 552 Semiconductor Materials: Properties and Applications

Crystals & bonds: Crystals and crystal structures, chemical bonds in semiconductors. Electronic states: energy bands, density of states, electron statistics & Fermi level, carrier concentration at thermal equilibrium, intrinsic and extrinsic semiconductors. Electronic Properties: charge transport properties, Hall effect, optical properties, thermal properties. Preparation and Characterization: preparation and doping techniques, characterization techniques. Semiconducting materials: Si Ge and their applications in commercial devices, wide and narrow band gap semiconductors. Semiconductor devices: p-n junction, diodes, transistors, optoelectronic (LED's, diode lasers), photovoltaic devices, thermoelectric devices.

#### **MME 553 Surface Engineering**

Surface Engineering is an enabling technology encompassing surface treatment and thin film and coating deposition. Engineering a surface can substantially improve the wear and corrosion resistance of structural components to give enhanced component lifetime and material protection. The substrates involved may be metallic, ceramic or polymeric and the coating or treatment layers employed equally diverse. The processes involved range from traditional, well-established techniques (e.g., painting, electroplating and galvanizing), to more technologically demanding coating technologies and surface treatments (e.g., physical and chemical vapor deposition, ion implantation and laser treatment) which have benefited from recent innovations. Thus the mechanical/materials engineer is faced with a multitude of options when selecting a treatment to engineer the surface of a component or structure. This course will introduce and explore these options.

(Prerequisites: instructor's consent)

#### **MME 554 Materials Characterization Techniques**

The course is designed to develop an understanding of materials characterization techniques used in materials science and engineering. Diffraction techniques: X-ray, electron and neutron diffraction. Microscopic techniques: Optical, Electron, Atomic Force Microscopy. Spectroscopic techniques: Vibrational, Visible and Ultraviolet, Nuclear Magnetic Resonance, Electron Spin Resonance, X-ray, Electron spectroscopies. Other techniques: thermal, electrical, mechanical, magnetic characterization. The course includes demonstrations and/or lab experiments.

(Prerequisites: instructor's consent)

#### MME 555 Polymer Properties and Polymers in Medical Applications

The course is divided into two parts. The first part deals with the structure-properties interrelation in polymers. In the second part, topics related to polymeric biomaterials and their medical applications are discussed: Biodegradable polymers, biopolymers, polymers as drug-delivery systems, use of polymers in dental applications, immobilization of enzymes on polymers, polymer hydrogels and their medical and pharmaceutical applications, polymeric membranes. Polymerbound antibodies and antigens. Polymeric templates in tissue engineering.

(Prerequisites: instructor's consent)

#### **MME 556 Fundamentals of Ceramics**

Bonding in ceramics – Structure of ceramics – Effect of chemical forces and structure on physical properties – Thermodynamics and kinetics - Defects in ceramics – Diffusion and electrical conductivity – Sintering and grain growth – Phase equilibria – Mechanical, thermal, dielectric and optical properties.

(Prerequisites: instructor's consent)

#### **MME 561 Lasers and their Applications**

In science fiction movies of the 1950s, there were often monsters who could emit lethal rays of light from their eyes, but until the invention of the laser, such concentrated and powerful energy beams were only fantasy. Today it is possible to modify, probe or destroy matter using the highly focused radiation from energy sources known as lasers. Lasers are part of everyday tasks, such as reading grocery prices, measuring the size of a room, playing music on compact disks and printing or copying paper documents. Lasers also play a key role in modern production processes; they can contribute to improving products, conserving raw materials and opening up new opportunities. Laser welding is used by the automotive industry and lasers are used in computer chip manufacturing. They are used and developed just as successfully in other application areas such as medicine. This course offers an introduction to lasers and their wide range of applications. (Prerequisites: instructor's consent)

#### MME 562 Semiconductor Processing Technology

Semiconducting crystals – Crystals and crystallographic planes - Crystal of silicon - Wafer preparation - Compound semiconductors - Thermal oxidation and nitridation - Silicon dioxide and interface SiO2-Si - Growth of thin films - Chemical vapor deposition - Physicochemical processes of growth -Physical vapor deposition - Lithography - optical lithography -Techniques for improving resolution - Electron beam lithography – X-ray lithography – Ion beam lithography – Control of purity and etching - Purity processes - Etching - ion implantation - Fundamentals - Energy losses - Destruction of crystal and activity of dopants - Diffusion - Point defects -Fick's laws - Non-constant diffusion coefficient - Diffusion in polycrystalline Si – Diffusion in insulators – Diffusion sources – Gettering in Si - Contact and interconnect technology -Contact metallization - Multimetal dielectrics - Metallic interconnects - Interlevel dielectrics - Multilevel metals -Reliability.

(Prerequisites: instructor's consent)

#### **MME 563 Materials Physics**

Atomic structure and chemical bonding - Crystal lattice and symmetry - Bonds and structure - Scattering experiments -Defects - Point, Linear and Planar - Thermal properties -Phonons - Heat capacity - Thermal expansion - Phonon thermal conductivity - Free electrons in solids - Jellium model - Fermi statistics - Specific heat in metals - Thermionic emission - Electronic bandstructure - Nearly free electron approximation - Tight binding approximation - Density of states - Magnetism - Paramagnetism - Diamagnetism -Ferromagnetism - Antiferromagnetism - Motion of electrons and transport phenomena - Effective mass - Electrical conductivity in metals - Thermoelectric phenomena -Wiedemann-Franz law – Superconductivity – Fundamental phenomena - BCS theory -Dielectric properties - Absorption of electromagnetic radiation - Ferroelectricity - Excitons -Semiconductors - Data for a number of important semiconductors - Intrinsic semiconductors - Contacts (p-n junction and metal-semiconductor Schottky contact) -Heterostructures and superlattices - Important semiconductor devices.

(Prerequisites: instructor's consent)

#### **MME 564 Nanomechanics**

The operating environment of nanostructures is completely different from that of their macroscale counterparts. For example, responses to thermal fluctuations, and for certain scales to quantum potentials, contribute to their positional uncertainty. This course aims to:

- (1) introduce students to nanotechnology and emphasize its great potential and applications by providing different examples.
- (2) provide the basic classical, statistical and quantum mechanics and thermodynamics required to characterize nano-mechanical devices.
- (3) explain the function of different equipment used in visualization of nano-devices. Students will be given the opportunity to have practical contact with an Atomic Force Microscope.

(Prerequisites: ENG 100, 104, MAS 041, MAS 042, MAS 043, MAS 044 or instructor's consent)

#### MME 565 Physical Principles, Design and Fabrication of MEMs

This course is intended to provide in-depth knowledge of micro-electro-mechanical systems (MEMs) by emphasizing the relevant physical principles, design and fabrication. A historical overview is given first, followed by a discussion of the relevant length scales, market analysis and motivation.

Simple MEMs devices such as switches, comb drives and pressure sensors are described with emphasis on the transduction principles (i.e., mechanical, electrostatic, thermal, piezoelectric) to offer in-depth understanding of device operation and issues pertaining to design and fabrication.

Detailed attention is then given to the fabrication of MEMs using standard integrated circuit (IC) processing technology.

Specifically, the various types of lithography, i.e., photolithography, electron beam lithography, soft lithography, etc., are covered, along with thin film deposition, wet and dry etching methods. Surface and bulk micromachining are also explained together with hot embossing and micro-molding. Finally, issues pertaining to assembly, packaging and reliability are covered. These include: RF MEMs, Microfluidic MEMs. (*Prerequisites: ENG 100 or instructor's consent*)

#### **MME 566 Advanced Semiconductor Photovoltaic Devices**

The aim is to introduce students to advanced compound semiconductors and third-generation photovoltaic solar cells. Introduction and overview of the history of compound semiconductors. Low dimensionality: quantum wells, wires and dots. Schrödinger's equation, wave particle duality. Density of states in 3D, 2D and 1D. The square quantum well: energy levels and wave functions. Poisson's equation and the two-dimensional electron gases (2DEG). Sub-band densities, total 2DEG density. Band line up and types of heterostructures. Bandgap versus lattice constant of III-V and II-VI compounds. Lattice mismatch, pseudomorphic epitaxial layers, strain. Realisation of heterostructures: molecular beam epitaxy (MBE),

metal organic chemical vapour deposition (MOCVD), pulsed laser deposition (PLD). Doping in compound semiconductors, auto-compensation, amphotericity, delta( $\delta$ )-doping. Ohmic and schottky contacts. The GaAs/AlGaAs heterojunction. Selfconsistent solution of the Poisson's -Schrödinger equations. Calculation of band profile, levels and sub-band densities. Current transport, carrier generation and recombination in semiconductors wells, wires and dots. High efficiency solar cells: -P and -As based multiple quantum wells. Tandem solar cells. -N based solar cells. Motivation. Bandgaps, spontaneous and strain induced charges in GaN, InN, InGaN, etc. Materials issues and prospective. Third-generation solar cells and the nanotechnology paradigm. Top down versus bottom up device processing. Synthesis, self-assembly and directed selfassembly of nanowires and nanodots. Materials, e.g., -Cu, -Zn and -Cd based, typical efficiencies and issues.

#### MME 611 Statistical Theory and Modelling of Turbulent Flow

Averaging and correlations, vorticity and vortex stretching, and the energy cascade. Reynolds stresses; introduction to transport equations. Length scales and spectra; "universal" scaling of small eddies. Introduction to computational methods; DNS, LES, RANS. Introduction to modelling methods; local equilibrium, stress-transport, eddy-viscosity and structure-based. Topics on complex flows; strongly rotated turbulence, magnetohydrodynamic turbulence; astrophysical turbulence.

(Prerequisites: instructor's consent)

#### **MME 621 Advanced Engineering Controls**

Comprehensive overview of advanced control algorithms and tools essential to mechanical engineering and manufacturing research: Formal energy-based modelling methods (linear and bond graphs), multivariable optimal control and observation, nonlinear systems and control algorithms, in-process parameter identification and adaptive control, time-varying systems and robust control, and distributed-parameter systems and controls. The course is based on case studies of theoretical methods with practical applications, and includes analysis by computer simulation and design projects applied to the students' own research.

(Prerequisites: MME 521 or instructor's consent)

#### **MME 622 Non-Linear Dynamics**

The course introduces the basic theory of non-linear dynamics and emphasizes its applicability to mechanical and biological systems. Topics studied include simple non-linear models, fixed points, their characterization, and stability. Dynamical system reduction: the centre manifold and normal forms. Bifurcation as a means to chaotic behaviour. Frequency response function of the Duffing oscillator and its use in modelling the non-linear vibrations of a buckled beam, memory recall and mood switches. Reconstruction of non-linear dynamics from experimental observations using delay coordinates. (Prerequisites: simple undergraduate engineering mathematics; familiarity with linear ordinary differential equations and linear algebra)

#### MME 623 Advanced Multi-Body Dynamics

This course will study the motion of rigid bodies in threedimensional space. The kinematics and dynamics of rigid bodies will be examined. Modern analytical rigid body dynamics equation formulation and computational solution techniques applied to mechanical multibody systems. More specifically the following topics will be covered: kinematics of motion generalized coordinates and speeds, analytical and computational determination of inertia properties, generalized forces, Kane's equations, Hamilton's principle, Lagrange's equations, holonomic and nonholonomic constraints, constraint processing, and computational simulation.

(Prerequisites: intermediate dynamics and vibrations, English)

#### **MME 631 Non-Linear Acoustics**

This course will introduce nonlinear acoustics, the study of intense sound waves for which linear acoustics is not applicable. Nonlinear acoustics is pertinent to many areas including biomedical ultrasound, underwater acoustics, noise control, and enhancement of industrial processes. The course covers: distortion and shock formation in finite amplitude waves; harmonic generation and spectral interactions; absorption and dispersion; radiation pressure; acoustic streaming; weak shock theory; numerical modelling; diffraction of intense sound beams; parametric arrays; bubble dynamics; nonlinear imaging techniques.

(Prerequisites: MME 533, MME 534)

#### MME 641 Thermal Manufacturing Processes

In-depth analysis and design of advanced thermal manufacturing processes, with emphasis on departmental research activities. Review of the related literature, as well as the state of the art in hardware and software for thermal modelling and control of traditional and non-traditional manufacturing techniques. Background in thermal sciences is applied to manufacturing processes, invariably involving dynamic heat and/or mass transfer phenomena. Principles, implementation, simulation and control of thermal processes such as arc, plasma, Laser, ultrasonics, and spray for cutting, joining, rapid prototyping and rapid thermal processing of materials. Topics include thermal modelling, covering analytical, numerical and experimental methods, as well as control techniques, including multivariable, distributedparameter and adaptive algorithms. Hands-on projects in the Hephaistos Manufacturing Laboratory.

(Prerequisites: MME 521 or instructor's consent)

#### MME 651 Electronic and Magnetic Oxides

Structure of oxides – Conducting oxides – Dielectric oxides – Superconducting Oxides – Magnetic Oxides. High thermal conductivity Oxides. (Prerequisites: instructor's consent)

### **Research Interests of the Academic Staff**

## Andreas Alexandrou Professor

His research interests and contributions are in basic fluid flows with applications in the environment, processing of materials, and in wake flows.

### Michalis A. Averkiou

### Associate Professor

His research interests are in the area of diagnostic ultrasound imaging, therapeutic applications of ultrasound, drug-targeted delivery, ultrasound-mediated gene transfection, and sonothrombolysis. He is particularly interested in microbubble ultrasound contrast agents and their applications including imaging and quantification of the perfusion bed of various organs and cancers.

#### • Christakis Constantinides Assistant Professor

Professor Constantinides's research focuses on characterization of the electromechanical function of the heart in animals and humans, with the aim of increasing our understanding of human diseases that are predominantly genetic in nature. His broad research interests lie in the areas of physiology, cardiac mechanical function and biomedical imaging. Specifically, his particular interests include hardware design, tissue structure modelling and simulations, implanted devices, interventional catheterization techniques, and cellular tracking methods, using diagnostic micro-imaging techniques with emphasis on Magnetic Resonance Imaging.

# Haralabos Doumanidis Professor

His research interests include nanomanufacturing, thermal manufacturing, material deposition and joining processes, rapid prototyping, rapid thermal processing and laser annealing of semiconductors, distributed parameter system modelling and control, robotics and mechatronics, and biomedical instrumentation.

# Ioannis Giapintzakis Professor

His research interests lie in the area of experimental materials science and technology: thermoelectric oxides, lowdimensional quantum magnets with high thermal conductivity, half-metallic ferromagnets, spintronic devices, giant magnetoresistive oxides, magnetic properties of carbon-based nanostructures, and high-temperature superconductors.

## Dimokratis Grigoriadis Lecturer

His research interests include environmental fluid dynamics, incompressible turbulent flows in classical hydrodynamics and magnetohydrodynamics (MHD), oscillating and pulsating

turbulent flows, multiphase flows and atmospheric dispersion, flows in coastal regions. His current research interests focus on basic heat and mass transport phenomena using advanced and efficient numerical techniques such as the immersed boundary method for Large Eddy Simulations (LES) and Direct Numerical Simulations (DNS).

#### Stavros Kassinos Associate Professor

His research interests include modelling and simulation of complex turbulent flows, modelling and simulation of magnetohydrodynamic and magnetogasdynamic flows, biomedical flows, computational methods for multiscale phenomena as they apply to nanotechnology issues, thermodynamics, and renewable energy sources.

#### • Theodora Krasia-Christoforou Assistant Professor

Her research interests are focused on the areas of polymer synthesis, characterization and applications of synthetic polymeric materials. She is particularly interested in novel polymers of different architectures and chemical compositions comprising various functionalities capable of responding to external stimuli (such as temperature or pH changes), binding onto inorganic matter (catalytic and optoelectronic applications), adsorbing and releasing solutes (drug-release systems), binding onto biological molecules, etc. She is also interested in the preparation of polymeric systems with the ability for microphase separation, leading to the formation of well-organised nanomorphologies in solution and in the solid state.

#### Andreas Kyprianou

#### Assistant Professor

His research interests include non-linear systems, dynamic modifications and robustness, modern signal processing techniques, statistical mechanics and their application to nanomechanics.

#### Theodora V. Kyratsi

#### Assistant Professor

Her teaching interests include Material Science and Engineering, Material Characterization Techniques, Advanced Materials in Engineering, Materials for Energy Generation and Storage. Her research interests lie in the areas of material science (material optimization, doping techniques and solid solutions, annealing, sintering, intercalation), material characterization, X-ray techniques, thermal analysis, chargetransport - Thermal - Optical properties, thermoelectric materials for cooling applications and power generation.

#### • Loucas S. Louca Assistant Professor

#### His research interests lie in the areas of system dynamics and control, bond graph theory, physical system modelling and model reduction of large-scale systems, modelling of automotive systems, multi-body dynamics, computer aided
modelling and simulation. He is particularly interested in automating the process of generating efficient dynamic models for use in the system and control design process. He is the author of CAMBAS (Computer Aided Model Building Automation System), an automated modelling software that enables the rapid development of efficient models for linear systems and its use in teaching courses in modelling of dynamic systems.

#### Claus G. Rebholz Associate Professor

His research interests and contributions are in the area of Materials and Surface Engineering, especially in the development and characterization of nano-composite/structured hard and wear-resistant thin films, produced by various vacuum coating and surface modification techniques.

#### • Triantafyllos Stylianopoulos Lecturer

Professor Stylianopoulos's research interests involve the use of computational mechanics for the study of the mechanical behavior of solid tumors as well as for the optimal delivery of nanoparticles in the diagnosis and treatment of cancer.

#### Matthew Zervos

#### Assistant Professor

His research interests include semiconductor device fabrication, characterization and modelling with particular emphasis on photovoltaic solar cells which are based on III-V semiconductors like GaAs, InP, GaN, etc., but also Si. In addition he is interested in nanotechnology and especiallly nanowires and nanodots, their fundamental properties and aspects of their integration into functional devices via bottom-up methods for a diverse range of applications (e.g., nanosensors). Finally, his interests include fabrication of micro-electro mechanical systems (MEMs) for biological applications.

# **Contact Details**

Graduate Programme Coordinator Ioannis Giapintzakis Tel: 22892283 e-mail: giapintz@ucy.ac.cy

## **Graduate Programme Committee**

Triantafyllos Stylianopoulos Ioannis Giapintzakis Claus Rebholz

#### **Department Secretariat**

Maria Markou Tel: 22892250 / 22892248 Fax: 22895081 e-mail: markou.maria@ucy.ac.cy http://www.ucy.ac.cy/mme-en









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# **FACULTY OF LETTERS**

**Department of Byzantine** and Modern Greek Studies (256)

**Department of Classics** and Philosophy (262)

**Department of History** and Archaeology (266)

Interdepartmental Programme in Byzantine Studies (278)

# **Byzantine and Modern Greek Studies**

The Department of Byzantine and Modern Greek Studies includes the fields of Byzantine Philology, Modern Greek Studies, Comparative Literature, Theory of Literature and Linguistics.

The Department offers:

- a postgraduate programme in Modern Greek Studies, and
- a postgraduate programme in Byzantine Studies (in collaboration with the Department of History and Archaeology).



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# Introduction

Both postgraduate programmes of the Department are offered at two levels: a Master Degree and a Ph.D. Degree. The main focus of the postgraduate programme in Modern Greek Studies is the in-depth examination of Modern Greek literature texts from the 11th century to the present. In this context, the programme offers seminars in a number of related areas (i.e., Comparative Literature, Theory of Literature, Linguistics, History of Art and Theatre Studies) with the aim of encouraging interdisciplinary approaches. The inter-departmental postgraduate programme in Byzantine Studies similarly aims at promoting an interdisciplinary approach in the broader field of Byzantine Studies.

The postgraduate programme in Modern Greek Studies, at the Master and Ph.D. levels, was inaugurated in 1999. The interdepartmental programme in Byzantine Studies at the level of Master Degree started in September 2007.

Among the Department's immediate priorities are:

(a) to develop postgraduate programmes in all the academic fields of the Department and (b) to establish stronger links with the postgraduate programmes of other departments of the University of Cyprus, as well as with other European Universities.

For this purpose and to promote interdisciplinary research in the frame of the postgraduate programmes, the Department holds exchange programmes with important departments in other European universities.

# INTERDEPARTMENTAL POSTGRADUATE PROGRAMME IN BYZANTINE STUDIES

(See page 278)

# **MODERN GREEK STUDIES**

The Programme at both levels (M.A and Ph.D.) offers students the following specialisations:

- (a) History of Literature Grammatology (critical editions of Modern Greek literary texts, Metrics, archival research, etc.)
- (b) Theory of Literature (analyses and explanatory approaches to texts on the basis of generally established theoretical principles and types, e.g.,

literary genres, the rhetorical and narrative organisation of literary texts, the readers' reception of the text, etc.)

- (c) Literary Criticism (history and theoretical principles of Modern Greek literary criticism)
- (d) Comparative Literature (approaches based on comparing national literatures in terms of concepts such as influence, the readers' reception of the text, analogy, etc.)

# **Master Degree**

#### **Number of Students**

Twelve, including Ph.D. students.

#### **Admission Requirements**

- 1. B.A. in Modern Greek Literature or related subject (upper second class minimum) and detailed list of courses taken during undergraduate studies
- 2. Brief Curriculum Vitae and a report on academic and research interests
- 3. Two reference letters
- 4. Written or oral examination in: a) Modern Greek Literature, b) one foreign language
- 5. Interview with the programme's postgraduate committee.

## **Course Duration**

Four semesters for the full-time programme. With the approval of the supervisor the course duration may extend to four more semesters.

### **Academic Requirements**

- 1. Completion of 120 ECTS, of which:
  - 60 ECTS are obtained through successful attendance of the postgraduate seminars (10 ECTS correspond to each seminar)
  - 40 ECTS with the completion of the dissertation
  - 20 ECTS by attending the programme's Colloquium (lecture series)

*Regarding the Colloquium, see point 4 in the Structure of the Programme below.* 

2. Viva on the M.A. dissertation

# **Analytical Programme of Studies**

#### **First Semester**

Completion of three postgraduate seminars (20 ECTS)

#### **Second Semester**

Completion of two postgraduate seminars (20 ECTS)

#### **Third Semester**

Completion of two postgraduate seminars (20 ECTS)

#### **Fourth Semester**

Writing of the M.A. dissertation under supervision and defending it before a three-member examination committee (40 ECTS).

#### **Structure of the Programme**

1. Postgraduate seminars cover five periods:

#### A. 11th – 14th centuries (code nos. BMG 641-650)

This unit examines the vernacular production of the transition period, from the end of the Byzantine era to the rise of Modern Greek Literature. Topics of interest include: the evolution of the Greek language, but mainly the literaricity of the poetic-epic, and satiric production of the 11th – 12th c. (Digenis Akritas, Ptochoprodromos); allegoric poetry (Logos Parigoritikos, Istoria ton Tetrapodon Zoon); the romances (Livistros and Rhodamne, Kallimachos and Chrysoroi, Imperios and Margarona) and other historical narratives (Istoria Velissariou, Diegesis Achilleos). Acritic songs are also examined while special attention is given to the early period of Cretan literature, and poets such as Stephanos Sachlikis and Marinos Falieros.

#### B. 15th – 17th centuries (code nos. BMG 651-660)

This unit begins with the Fall of Constantinople and ends with the Fall of Crete (1669). It examines literary production in those regions of Greece under Latin and Franc occupation. Topics of interest include: the medieval-renaissance literature of Cyprus (from the Chronicle of Leontios Machairas to Rimes Agapis) and the literature production of Crete from the early Renaissance (Bergadis' Apokopos) to the period of the 'Cretan bloom' (Erotokritos, Thysia to Avraam, Erofili, etc.). This period also includes the examination of medieval folk songs (Arodafnousa, Rizitika, etc.).

#### C. 18th – 19th centuries (code nos. BMG 661-670)

This unit examines the texts of the Greek Enlightenment (1750-1821), paying particular attention to the prose writings of E. Voulgaris, R. Ferraios, I. Moisiodax, D. Katartzis, A. Koraes, and the poetic production of I. Vilaras and A. Christopoulos. This unit also includes Folk (Klephtic) Poetry, the School of the Ionian Islands (1800-1860), the poetic works of A. Kalvos, D. Solomos and A. Valaoritis, the First School of Athens (1830-1880), the poetic production of the Second Athenian School (Generation of the 1880s) and especially the work of K. Palamas, the historical novel, the first period in the production of prose narratives (1830-1880), and, finally, the ethnographic short stories of the 1880s-1900s (Papadiamantis, Vizyenos, Karkavitsas). This unit also includes the study of Medieval Cypriot demotic songs ("Arodaphnousa" etc.).

#### D. 20th – 21st centuries (code nos. BMG 671-680)

This unit examines the literary innovations of the 1920s and 1930s, as reflected in the works of representative authors of the relevant generations. It also examines the post-war production, up to the present day. Topics of special interest include: interwar fiction (D. Voutiras, K. Chatzopoulos, K. Theotokis, K. Paroritis, etc.), the poetic work of A. Sikelianos, N. Kazantzakis, and the 'Generation of the 1920s' (K. Karyotakis, T. Agras, N. Lapathiotis, etc.), the poetry of C.P. Cavafy, Greek modernism (Seferis, Elytis, Ritsos, Montis), Greek surrealism (N. Kalas, A. Empeirikos, N. Engonopoulos), the novels of the 1930s generation, post-war poetry (T. Sinopoulos, M. Anagnostakis, M. Sachtouris, G. Pavlopoulos, T. Pieridis, P. Michanikos and others), post-war prose (S. Tsirkas, D. Hatzis, Y. Ioannou, etc.), contemporary poetry (L. Poulios, M. Ganas, K. Charalampides) and prose (S. Dimitriou, R. Galanaki, V. Gourogiannis).

#### E. Methodology (code nos. BMG 681-690)

This unit examines issues that relate to the methodological field (historiography-theory-criticism-comparative literature) of literary practices. The seminars in this unit primarily explore the theories and the methods hitherto applied to the interpretation and analysis of literary texts, placing particular emphasis on their application to the study of Modern Greek literary texts.

- 2. Students may attend seminars in each period depending on the offered seminars; however no more than three seminars in a single unit may be selected.
- 3. In consultation with the director of the postgraduate programme, students may attend seminars offered in other postgraduate programmes within the Department or within the School of Philosophy.
- 4. In parallel with the seminars, the Department runs regular research meetings (Colloquia), where members of staff, Ph.D. students and invited speakers present their research. Attendance and participation in the Colloquium are mandatory.
- 5. The M.A. dissertation in Modern Greek Studies carries the course code number BMG 695.

# Ph.D. in Modern Greek Studies

#### **Course Duration**

The course duration may not exceed eight academic years. The Ph.D. dissertation may be submitted only after the sixth semester from the start of the programme.

#### **Admission Requirements**

The admission requirements for the Ph.D. programmes are the same as those for the Master programmes (see relevant paragraph above). In addition, the Department requires the following:

- 1. Postgraduate Degree (M.A./D.E.A./ etc.) in Modern Greek Studies
- 2. A copy of M.A. Dissertation
- 3. Examination in one foreign language (where this is deemed necessary)

#### **Academic Requirements**

- 1. A comprehensive oral examination before a threemember examination committee, prior to the sixth semester. Candidates are examined in grammatological, methodological and theoretical subjects.
- 2. Presentation and approval of the dissertation proposal prior to the sixth semester.
- 3. Attendance of the Departmental Colloquia.
- 4. Submission and approval of the Ph.D. dissertation.

For more information on the academic requirements, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

# Additional Information on the Postgraduate Programmes

The students in both the M.A. and the Ph.D. programmes are encouraged to spend part of their studies abroad, so that they have the opportunity to work in specialized research libraries. For that purpose the Department of Byzantine and Modern Greek Studies has established a wide network of cooperation and exchange programmes (ERASMUS) with related postgraduate programmes in Byzantine and Modern Greek studies and Comparative Literature at Greek and other European Universities.

# **Research Interests of the Academic Staff**

# Panagiotis Agapitos Professor

Byzantine erotic verse romances, rhetoric and poetry in Byzantium, imperial ideology, cultural history of the Middle Ages, Byzantine music, the history of manuscripts, textual criticism.

# Yoryia Agouraki Assistant Professor

Syntactic Theory, Comparative Syntax as well as the interfaces between Syntax and the other branches of Theoretical Linguistics, namely Phonology, Morphology and Semantics.

# Aphrodite Athanasopoulou

#### Assistant Professor

Modern Greek Literature (from the literature of the Cretan heyday to the post-World War II generation) with a focus on 19th and 20th-century literary production and criticism. More specifically: Greek Romanticism – Heptanesian and Athenian Schools – with a focus on the oeuvre of Dionysios Solomos, the Greek language question (from the Enlightenment onwards), Realism in prose (Greek and European), Greek Modernism with a focus on the 1930s generation. Also: Literary Theory with a focus on topology and narratology, methods and approaches to teaching literature, relationship between history and literature (19th-century historical poetry – historical novel, the historical Cavafy, the post-World War II generation).

#### • Julia Chatzipanagioti-Sangmeister Associate Professor

Modern Greek Literature from the 18th until the early 20th century, Travel Literature (Greek and European), edition of

manuscripts, Comparative Literature, Cultural History of the 18th and 19th centuries, and bibliography.

# Stavroula Constantinou

Assistant Professor

Her research interests include hagiography, Byzantine literary genres, poetics, performance, narrative and feminist approaches, the body in Byzantine literature and culture and the literary image of the Other.

#### Antonia Giannouli

Assistant Professor

Byzantine theological literature, in particular religious poetry, hymnography and their commentaries, the history of theological commentaries and homiletical texts; Byzantine lexicography, prosopography and the critical edition and study of texts.

### Martin Hinterberger

#### Associate Professor

Late-Byzantine literature, in particular Hagiography as well as vernacular literature, the History of Medieval Greek, Byzantine autobiography, the Cultural history of Byzantium, especially the topic of "Envy", the Edition and study of Byzantine documents, in particular the documents of the Patriarchal Archives of Constantinople.

## Tassos A. Kaplanis

#### Assistant Professor

Early modern Greek (vernacular) language and literature of the period 12th to early 19th centuries, theory of literature and comparative studies. More specifically, Cypriot and Cretan literary and historiographical production of the 16th and 17th centuries; periodization and origins of early modern Greek literature; editorial techniques applied to early modern Greek texts; poetics and, in particular, generic classifications from the Renaissance to the present; 'pop' and 'pulp' fiction in the same period; iconological studies; interrelation of history and literature.

## Marilena Karyolemou

#### Associate Professor

Language policy and language planning, Language attitudes, Sociolinguistics, Dialectology.

#### Marianne Katsoyannou

#### Associate Professor

Theoretical linguistics research with the description of the varieties of the Greek language as main application field, language engineering with emphasis on issues of translation, lexicography and terminology.

# Michalis Pieris Professor

Modern Greek Language and Literature, especially Medieval and Renaissance Cypriot Literature (Leontios Machairas, Cypriot Love Poems of the 16th century), contemporary poetry (in particular, Cavafy, Seferis, Montis, Sinopoulos), Modern Greek theatre (in particular, approaches to the stage interpretation of Modern Greek literary works).

# Marinos Pourgouris Assistant Professor

Modern Greek and Comparative Literature (with an emphasis on Modernism); Literary theory, particularly the critique of poststructuralism; psychoanalytic criticism, postcolonial theory and philosophy; cultural history (concentrating on the Balkans and the Mediterranean).

# Alexandra Samuel Associate Professor

European Modernism and Literary Avant-garde, Modern Greek Literature of the 19th and 20th cc in relation to the European Literature of the same period, History of Modern Greek Criticism.

# Pantelis Voutouris Professor

Modern Greek Literature and criticism of the 19th and 20th centuries.

# **Contact Details**

# Coordinators of the Programme in Byzantine Studies

Martin Hinterberger (BMG) Tel.: 22893879

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#### Coordinator of the Programme in Modern Greek Studies

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#### **Department Secretariat**

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Skevi Vassiliou Tel.: 22893870 Fax: 22894490

e-mail: bmg@ucy.ac.cy

http://www.ucy.ac.cy/bmg-en



# **Classics and Philosophy**

The aim of the programme is the study and the solid specialization in the following areas: Ancient Greek Philology, Latin Philology, Comparative Study of Classical Texts, Ancient Greek Dialectology and other pertinent disciplines such as Epigraphy, Papyrology and Greek and Latin Paleography. The second cycle (first postgraduate) lasts two years and leads to a Magister Artium (M.A.), and the third cycle (second postgraduate) leads to a Doctor of Philosophy Degree (Ph.D.) and lasts three years.



# General Principles and Characteristics of the Programme

The Department offers postgraduate programmes at the M.A. and Ph.D. levels. The programmes are founded on the general principle of the unity of Classical Studies and have been designed to offer a well-grounded specialization in Ancient Greek Studies, Latin Studies, or the Comparative Study of Classical Literature. In the context of great and significant developments in Classical Studies in the international academic community, which makes the offer of high level specialization courses more than imperative, the Department has put together a curriculum of carefully designed Postgraduate Seminars which reflect the particular research interests of the academic staff members, who are personally and intimately involved in the organisation and instruction. Moreover, visiting scholars complement and enrich the Programme. This allows the postgraduate students to choose from a wide range of courses and methodology options, and contributes to the development of an environment of support and constructive criticism, which is necessary for the attainment of academic standards.

# **Admission Requirements**

# **Basic Requirements**

Applicants for entrance in the Postgraduate Programme must hold a First or Upper Second Class Honours Degree (or equivalent), from the University of Cyprus or any other accredited university, in Classical Studies or a related subject. They must also submit two letters of recommendation from professors of Classics or a related field. Additional qualifications such as other degrees may, upon assessment, be considered as an advantage.

#### **Interview and Examinations**

Admission is granted to a candidate who has conducted an interview before a three-member committee, and who has successfully taken a written examination.

## **Level of Studies**

Applicants who fulfill all entry requirements will be admitted as postgraduate students and an Academic Advisor will be assigned by the Department. During the required four semesters and depending on their performance, students will be admitted to one of the two levels of the Postgraduate Programme, i.e., M.A. (Magister Artium) level or Ph.D. level and a Research Advisor will be appointed from among the Programme's teaching staff.

# Postgraduate Degrees

The Department offers a postgraduate programme at two levels, which lead to the following degrees:

- 1. Magister Artium (M.A.)
- 2. Doctor of Philosophy (Ph.D.)

# **M.A. (MAGISTER ARTIUM) PROGRAMME**

In order to obtain a Magister Artium Degree, the following qualifications are required: full attendance at the Postgraduate Seminars for a minimum period of three semesters, successful completion of at least 120 ECTS and writing a thesis. The thesis must be 60-100 pages long (A4 paper size, 1.5 line spacing), demonstrating the students' ability in methodical treatment of a given subject, judicious use of ancient sources as well as secondary literature, originality of ideas and scholarly presentation of results.

### **Programme of Studies**

The graduate programme in Classical Philology of the Department has, from its inception, included eight courses with the following structure: Two courses in Ancient Greek (AGP 600-699 in accordance with the thematic units of the undergraduate programme), two courses in Latin (LAT 600-699 in accordance with the thematic units of the undergraduate programme), two courses in Historical Linguistics and/or Epigraphy (AGL 600-699 in accordance with the thematic units of the undergraduate programme), two courses in Historical Linguistics and/or Epigraphy (AGL 600-699 in accordance with the thematic units of the undergraduate programme), one course in Papyrology (AGP 601) and one course in Paleography (HIS 661).

Courses in Classical Philology are offered as an alternative to the courses in Ancient Greek and Latin.

#### **Postgraduate Seminars**

The Postgraduate Seminars of the programme will be structured around the following areas of Classical Studies:

- Ancient Greek Literature
- Latin Literature
- Comparative Study of Classical Literature
- Ancient Text Criticism and Editorial Technique

- Auxiliary Disciplines of Classical Studies (Greek and Latin Palaeography, Papyrology, Epigraphy)
- Ancient Greek Language and Dialects
- History of the Latin Language
- Political Thought of the Ancient Greeks and the Romans
- Interpretative Approaches to Classical Texts
- Translation Issues in Classical Texts
- Classical Survivals in Modern Literatures
- History of Classical Scholarship

Three courses are offered in the first and second semester, and two courses in the third semester. The courses in Ancient Greek (code AGP) and Latin (code LAT) must cover different fields which can be defined either on the basis of the periods being studied, e.g. Poetry and Prose of the Classical Period, or, on the basis of genre, e.g. Poetry of the Archaic and Classical Period. This curriculum ensures that, during a two year programme all postgraduate students receive a comprehensive knowledge of ancient Greek literature.

It is recommended that one of the two courses in Historical Linguistics (AGL) covers the area of Greek or Latin Epigraphy.

Depending on the orientation of their research, postgraduate students will be able to select and attend those Postgraduate Seminars that are of interest to them and that will assist them in building a scholarly profile and writing the required essays.

## **Courses Offered**

#### First Semester

(3 courses x 9 ECTS = 27 ECTS) AGP I 600 - 699 LAT I 600 - 699 AGL I 600 - 699

#### Second Semester

(3 courses x 9 ECTS = 27 ECTS and the commencement of the work on the M.A. Thesis [search for bibliography] = 6 ECTS, Total: 33 ECTS) AGP 601 Papyrology AGP II 6... LAT II 6... AGP 690 M.A. Research I (6 ECTS)

#### **Third Semester**

(2 courses x 9 ECTS = 18 ECTS and continuation of the writing of the M.A. Thesis =12 ECTS, Total: 30 ECTS) AGL II 645 - 670 HIS 661 Latin Paleography AGP 691 M.A. Research II (12 ECTS)

#### **Fourth Semester**

M.A. Thesis 30 ECTS

Grand Total: 120 ECTS

(Credits from 8 three-hour long courses = 72 ECTS Credits from M.A. Thesis = 48 ECTS)

### Ph.D. PROGRAMME

#### Requirements

For the completion of the doctoral programme the following are required: successful completion of at least 240 ECTS from the doctoral programme including the successful completion of the Thesis.

The successful completion of the comprehensive examination by – at the latest – end of the fifth semester is a prerequisite for the defence of the thesis.

The 240 ECTS workload that leads to the completion of the Ph.D. consists of graduate level courses, participation in seminars and conferences organised by the Department, and the completion of the thesis.

Candidates who already hold an M.A., M. Phil. or equivalent degree from another university will be called for an interview before a three-member committee consisting of members of the Programme's teaching staff in order to demonstrate their scholarly competence and their ability to enter the Programme.

#### **Doctoral Thesis**

The proposal for a doctoral (Ph.D.) thesis must be presented before a three-member committee consisting of members of the Programme's teaching staff. Successful applicants must subsequently write an original thesis which should contribute substantially to their respective fields of research. The degree is awarded after the successful defence of the thesis before a five-member board.

# **Research Interests of the Academic Staff**

#### • Giovanbattista Galdi Assistant Professor

History of Latin language with special focus on "Vulgar" and Late Latin, Latin epigraphy, Edition of Late Latin authors, Linguistic contact and Greek-Latin bilingualism.

#### Demokritos Kaltsas

Assistant Professor

Papyrology, ancient epistolography, lexicography, Atticism.

#### • Anna Panayotou - Triantaphyllopoulou Professor

Syllabic scripts of the Greek-speaking world, Greek alphabets and dialects, Koine Greek, the Greek inscriptions of Macedonia and Cyprus and the Cypriot dialect (ancient, medieval and modern).

#### Ioannis Taifacos

Professor

Textual criticism and editorial techniques in Greek and Roman classics, Roman historiography, Greco-Roman political thought, Latin grammarians and scholarship, Latin funeral orations, Roman poetry and influences on modern poetry.

#### Antonios Tsakmakis

Associate Professor

Archaic Lyric Philosophy and Political Theory of the 5th and 4th centuries B.C., Aristophanes, Greek Historiography, the History of Classical Scholarship, computer applications in Classical Studies.

#### Spyridon Tzounakas

#### Assistant Professor

Neronian Literature, Roman Epic, Roman Satire, Latin Historiography, Latin Elegy, Cicero's Orations, Roman Epistolography, Roman Stoicism.

#### Georgios A. Xenis

Associate Professor

Greek textual criticism, editorial practice, scholiasts, grammarians, ancient literary criticism, history of classical scholarship, teaching ancient Greek in Secondary School: methodological issues.

#### Maria Ypsilanti

#### Assistant Professor

Epigram, poetry of Hellenistic period and late Antiquity, tragedy, textual criticism.

# **Contact Details**

# Programme Coordinator

Professor Ioannis Taifacos Tel.: 22893846 e-mail: taifacos@ucy.ac.cy

# Department Secretariat

Marina Charilaou Tel.: 22893850 / Fax: 22894491 e-mail: classics@ucy.ac.cy http://www.ucy.ac.cy/cph-en

# **History and Archaeology**

The Department of History and Archaeology encompasses the disciplines of History and Archaeology / Art History. Its chief aims are teaching and academic research in those fields. Since its establishment in 1992, the Archaeological Research Unit (A.R.U.) has been operating as a centre of archaeological study. It has been functioning as part of the Department since 1996.

The Department offers the following postgraduate programmes:

- Mediterranean Archaeology: from Prehistory to Late Antiquity (Master and Ph.D.)
- Traditional Culture (16th 20th c.) (Ph.D.)
- Modern and Contemporary History (19th-20th centuries) (Master and Ph.D.)
- Interdepartmental postgraduate programme in Byzantine Studies in association with the Department of Byzantine and Modern Greek Studies (Master and Ph.D.)
- Cultural Heritage Management (Ph.D.)
- Ancient History (Ph.D.)

# **Research Activity**

The Department has inaugurated research programmes and projects in which postgraduate research assistants and postgraduate students participate. Their goal is original research, with special emphasis on Cyprus in relation to the rest of the Greek world and the Eastern Mediterranean.

For information on the research programmes of the Department faculty visit the Department of History and Archaeology and the Archaeological Research Unit websites:

www.ucy.ac.cy/hisarch-en www.ucy.ac.cy/hisarch/aru-en

# POSTGRADUATE PROGRAMME IN MEDITERRANEAN ARCHAEOLOGY: FROM PREHISTORY TO LATE ANTIQUITY

The objective of the programme is the study of the Archaeology, History and Culture of the Mediterranean region from Prehistory to Late Antiquity. The academic staff members of the Department of History and Archaeology in the following specializations participate in the programme as instructors and academic advisors:

- Prehistoric and Protohistoric Archaeology
- Environmental Archaeology and Archaeometry
- Archaeology of the Geometric, Archaic and Classical Periods
- Hellenistic and Roman Archaeology
- Ancient History and Epigraphy
- Folk Art and Architecture

# Programme Leading to a Master of Arts Degree

#### **Programme Structure**

For the postgraduate programme leading to the acquisition of a Master of Arts Degree in Mediterranean Archaeology: from Prehistory to Late Antiquity, 120 ECTS must be completed, as follows: Course work, equal to 80 ECTS, and a master thesis, equal to 40 ECTS (see requirements for a master degree).

Postgraduate students choose eight courses (each course equals 10 ECTS) from the following thematic units which are offered on a two-year cycle:

ARC 700 - ARC 709 The Mediterranean in Early Prehistory ARC 710 - ARC 719 The Mediterranean in the 3rd millennium B.C. ARC 720 - ARC 729 The Mediterranean in the 2nd millennium BC ARC 730 - ARC 739 The Mediterranean in the Iron Age ARC 740 - ARC 749 Art: Production and circulation (Architecture, Sculpture, Ceramics, Minor Arts, etc.) of the Geometric, Archaic and Classical Periods ARC 750 - ARC 759 Topography of the main centres of Classical antiquity (urban centres, necropoleis and sanctuaries) ARC 760 - ARC 769 Art: Production and circulation (Architecture, Sculpture, Ceramics, Minor Arts, etc.) of the Hellenistic and Roman Periods ARC 770 - ARC 779 Topography of the main centres of Hellenistic and Roman Antiquity (urban centres, necropoleis and sanctuaries) ARC 780 - ARC 789 Protection, Preservation and Management of Cultural Heritage ARC 790 - ARC 799 Theoretical Archaeology, Methodology, Archaeometry and Environmental Archaeology: The directions of modern research ARC 800 - ARC 809 Ancient Technology (Ceramics, Metal, Stone, Glass, etc.) HIS 700 - HIS 709 Ancient Greek and Roman History: The directions of modern research HIS 710 - HIS 711 Ancient Greek and Latin Epigraphy

Full-time postgraduate students must take three of the above courses in the first semester of their studies and three in the second. In the third semester they must take two of the offered courses and also the compulsory course ARC 810 "Preparation and writing of a master thesis I" (10 ECTS). In the fourth semester postgraduate students continue and complete the master thesis (ARC 811 "Preparation and writing of a master thesis II": 30 ECTS).

#### **Programme of Studies**

#### **First Semester**

ARC 720 The Mediterranean in the 2nd millennium B.C.

- ARC 740 Art: Production and circulation (Architecture, Sculpture, Ceramics, Minor Arts, etc.) of the Geometric, Archaic and Classical Periods
- ARC 760 Art: Production and circulation (Architecture, Sculpture, Ceramics, Minor Arts, etc.) of the Hellenistic and Roman Periods

#### **Second Semester**

ARC 700 The Mediterranean in Early Prehistory

- ARC 790 Theoretical Archaeology, Methodology, Archaeometry and Environmental Archaeology: The directions of modern research
- HIS 702 Documents of the Hellenistic and Roman Periods in the Eastern Mediterranean

#### Third Semester

ARC 730 The Mediterranean in the Iron Age

- ARC 750 Topography of the main centres of Classical antiquity (urban centres, necropoleis and sanctuaries)
- ARC 770 Topography of the main centres of Hellenistic and Roman antiquity (urban centres, necropoleis and sanctuaries)
- HIS 711 Inscriptions of Cyprus
- ARC 810 Preparation and writing of stage I of the Master Thesis (offered only to 3rd semester students and is compulsory)

#### **Fourth Semester**

ARC 710 The Mediterranean in the 3rd millennium B.C.

- ARC 780 Protection, Preservation and Management of Cultural Heritage
- ARC 800 Ancient Technology (Ceramics, Metals, Stone, Glass, etc.)
- ARC 811 Preparation and writing of stage II of the Master thesis (offered only to 4th semester students and is compulsory)

#### Prerequisites for Admission to the M.A. Programme

- 1. Candidates may be:
- (a) Graduates of the Department of History and Archaeology of the University of Cyprus or the Departments of History and Archaeology of Greek universities.
- (b) Graduates of the Department of Classical Studies and Philosophy of the University of Cyprus or equivalent departments of Greek universities.
- (c) Graduates of Departments of Archaeology and/or Classical Studies of recognized universities.
- (d) Graduates with a degree in related fields of research (History, History of Art, Architecture, Anthropology, or other disciplines that have applications in Archaeology, such as Geology, Physics and Chemistry) from recognized universities.
- (e) Graduates of the School of Letters with a minor degree in History and Archaeology.

- 2. The Committee of the above programme will examine on their own merit applications from candidates who do not have a degree in Archaeology or History.
- 3. Graduates of the University of Cyprus and Greek universities must have an undergraduate diploma with a cumulative grade of 7.5/10.0 or higher. The equivalent is required for candidates who have graduated from other universities.
- 4. Candidates who meet the above requirements will be called for an interview and/or a written exam. They must also pass written exams in one of the main European languages (other than their mother tongue), namely English, French, German, Italian, Spanish.
- 5. Greek is the official language of instruction and for writing the master thesis.

#### **Submission of Application**

Applications must be submitted to the Department's postgraduate programme coordinator within the announced deadlines.

For information on application/ admission procedures and requirements, see the *Admission and Attendance Regulations – Application Requirements* on page 16 or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

In addition to the general requirements, candidates must also include the following in their application: a) two undergraduate essays on archaeological themes, or, in the case of applicants who fall under categories 1(a), 1(b) and 1(c), two undergraduate essays on related themes and b) certificates proving good knowledge of a foreign language.

# **Doctor of Philosophy Degree**

### Prerequisites for Admission to the Ph.D. Programme

- 1. Candidates must have a postgraduate degree from a recognized university, in Archaeology or in a related field (History of Art, Architecture, Anthropology and other subjects that have applications in Archaeology, such as Geology, Physics and Chemistry).
- 2. Candidates who meet the above requirements will be called for an interview. They must also pass written exams in two of the main European languages (other

than their mother tongue), namely English, French, German, Italian, Spanish.

#### **Submission of Application**

Applications must be submitted to the Department's postgraduate programme coordinator within the announced deadlines (see the *Admission and Attendance Regulations – Application Requirements* on page 16 or consult the Graduate School (tel. 22894021/44) or the Department's Secretariat).

In addition, applications must include: a) a copy of the M.A. thesis and copies of published articles, if any, b) certificates proving good knowledge of two foreign languages and c) statement regarding the research topic for the Doctoral Dissertation.

# **Contact Details**

#### **Programme Coordinator for GSP**

George Papasavvas Tel.: 22893566 e-mail: georgep@ucy.ac.cy

# POSTGRADUATE PROGRAMME OF STUDIES IN CULTURAL HERITAGE MANAGEMENT

Cultural Heritage Management is one of the most rapidly developing fields today that is directly related to the discipline of archaeology. It aims to study and promote archaeological sites and findings, and thus to educate and inform society on issues that concern a given region's cultural identity. This goal is compatible with the latest trends in western societies that aim to protect cultural heritage and provide financial support to this end. For this reason many European and North American universities now offer programmes in cultural heritage management at both undergraduate and postgraduate levels, programmes that are currently much in demand internationally. This new programme at the University of Cyprus caters to candidates who wish to specialize in this field, and its goal is to train students both practically and theoretically in the basic issues of the discipline, such as the management and protection of archaeological sites, museology, and the use of digital media in archaeological research.

Criteria for acceptance to the PhD Programme in Cultural Heritage Management:

- 1. Candidates must have an MA from a recognized University in Archaeology or another relevant subject (History of Art, Architecture, Anthropology, History and other disciplines relevant to Archaeology, such as Geology, Physics and Chemistry).
- Candidates who satisfy the criteria will be invited for an interview. Additionally, they must be successful in a written examination on two of the major European languages (English, French, German, Italian, Spanish).

Applications must be submitted to the Coordinator of the postgraduate programme within the deadline. Applications must include the following:

- (a) Transcript of Bachelor degree
- (b) Copy of the MA degree or certificate of anticipated graduation before the start of the PhD.
- (c) Transcript of the MA
- (d) Short CV
- (e) Copy of the MA thesis and copies of publications
- (f) Certificates attesting to good knowledge of two foreign languages
- (g) Recommendation letters from two academics
- (h) Topic for the PhD research/thesis

# **Contact Details**

Programme Coordinator for GSP Vassiliki Kassianidou Tel.: 22893564 e-mail: v.kassianidou@ucy.ac.cy

## POSTGRADUATE PROGRAMME IN TRADITIONAL CULTURE (16TH – 20TH CENTURY)

The aim of the programme is the specialized study of the various aspects of traditional culture, as it developed from the 16th century to the present. Within the framework of the local political, economic and social history, and with Cyprus as the main focus, the courses and research work will focus on the comparison of Cypriot culture with that of the wider area of the Mediterranean and Southeastern Europe. The programme will offer postgraduate students the knowledge and research methods that will enable them to contribute to a better understanding of the elements that compose the mosaic of traditional culture.

# **Doctor of Philosophy Degree** Prerequisites for Admission to the Ph.D. Programme

- 1. Candidates must hold an M.A. degree in a field related to Traditional Culture (Ethnography, Folk Art, Folklore, Ethnology, Social Anthropology, etc.) from a recognized university. Candidates whose M.A. degree is in another field but who fulfil all the criteria of the programme may also apply.
- 2. Good knowledge of the English language is required. The knowledge of a second European language will be considered an added desirable qualification.
- 3. The number of places is determined each year.

## **Submission of Application**

Applications must be submitted to the Department's Postgraduate Programme Coordinator within the announced deadlines. The applications must include the following:

- (a) Analytical transcript of first degree
- (b) Copy of M.A. degree or confirmation of imminent completion, or confirmation of registration in a Ph.D. programme of another recognized university
- (c) Analytical transcript of M.A. degree
- (d) Short Curriculum Vitae
- (e) A copy of the M.A. thesis
- (f) Certificate proving the good knowledge of the English language
- (g) Reference letters from two university professors
- (h) Statement of scholarly and research interests

# **Contact Details**

#### **Programme Coordinator for GSP**

Euphrosyne Rizopoulou-Egoumenidou Tel.: 22893562 e-mail: aregoume@ucy.ac.cy

# POSTGRADUATE PROGRAMME IN MODERN AND CONTEMPORARY HISTORY (19TH-20TH CENTURY)

#### **Master Degree**

The aim of the programme is to offer specialized study of Modern Greek and European History (since the 19th c.), and highlight its connection with the history of the wider area of the Mediterranean and Southeastern Europe; and to map the course of Cyprus and its political and cultural relations with the broader european world.

The personnel teaching in the programme comprises the academic staff appointed to the Department of History and Archaeology, in the following specialized areas:

- Modern Greek History
- Contemporary Greek History
- Modern European History
- Contemporary European History

The same members of staff will also act as academic advisors to the students.

Additional teaching can also be offered by Visiting Academic Staff and Short Term Visiting Academic Staff in the above specializations. Academics of other departments of the University may also offer classes following the Department's invitation.

#### **Organization of the Programme**

The postgraduate programme consists of three elements:

- I. Taught Courses
- II. Independent study, attendance and participation to the Colloquium
- III. MA dissertation

Students have to fulfill successfully all three elements of the programme in order to obtain the MA.

#### I. Courses

The taught element of the programme is organized around groups of courses. Every candidate has to attend seven courses, four of which have to be from two different categories. The remaining three courses have to be selected, a) from courses which belong to the categories that have already been selected, b) from courses from other (or others) categories of courses, c) up to two courses may be selected from the postgraduate programmes of other Departments of the Faculty of Letters. At the suggestion of the Coordinator of the Postgraduate Programme and with the approval of the Council of the Department, one of the two courses may be selected from a postgraduate programme outside the Faculty of Letters.

The categories of courses and the courses which will be offered are:

#### Category A: History of the Mediterranean Area in Modern and Contemporary Period

- HIS 740 National movements, revolutions, irredentism and the "great idea" in Europe and the Mediterranean basin (19th-20th c.)
- HIS 761 Navigation in the Mediterranean shipping lanes of the Mediterranean
- HIS 781 The British Colonialism and the Eastern Mediterranean

#### Category B: History of Cyprus (19th-20th c.) – Cypriot Studies

- HIS 742 Political life and conflicts in the Republic of Cyprus, 1960-1974
- HIS 762 Plans for the solution of the Cyprus Problem
- HIS 763 Social and Economic History of Cyprus
- HIS 782 The National Movement and political parties in Cyprus during the 20th c.
- HIS 783 Press, education and intellectual life in Cyprus
- HIS 784 The Greek Cypriot Church and the "Enosis" issue

#### Category C: Modern and Contemporary Greek and European History

- HIS 744 "Hot" conflicts during the Cold War: the Greek Civil War, the Korean war, the Vietnam war
- HIS 740 National movements, revolutions, irredentism and the "great idea" in Europe and the Mediterranean basin (19th-20th c.)
- HIS 785 Authoritarian regimes in Greece during the 20th c.

It is possible in the future to add new categories or to add or to replace courses in the existing categories.

#### II. Independent Study/Colloquium

A colloquium is offered as part of the programme. Postgraduate students, Ph.D. candidates, teaching staff of the postgraduate programme and visitors of the Department who present their research, participate in the meetings of the colloquium.

During the first semester students have to complete the Independent Study (graded with Pass / Fail) and to participate in the colloquium. The presentation of the Independent Study may take place during the first semester or the second semester (together with the presentation of the research proposal).

In the second semester of study all the postgraduate students present the research proposal for their M.A. dissertation at the Colloquium.

#### III. M.A. dissertation

In the third semester of studies, postgraduate students attend one course and begin work on their M.A. dissertation. The M.A. dissertation is expected to be in the region of 15.000 words.

During the fourth semester of studies, postgraduate students continue and complete their M.A. dissertation.

#### **Entry Criteria**

- 1. Candidates in the Postgraduate Programme may be graduates of departments from recognized universities. Priority will be given to: graduates of departments of History, graduates of faculties of Letters, graduates of departments of Political Studies, European Studies or Turkish Studies.
- 2. Graduates of Greek universities and of the University of Cyprus must have a GPA of at least 7,0 and above. Equivalent grades are required from graduates of other universities.
- 3. A good knowledge of the English language is required. Knowledge of a second European language is considered an advantage.
- 4. The final decision for the acceptance in the postgraduate programme is taken by a committee that is appointed by the academic staff of the Department (academic staff appointed to the Department and teaching in the programme) which evaluates the candidates' applications. The Committee reserves the

right to invite for an interview and/or a written examination the candidates, even if they fulfill all the criteria for acceptance.

- 5. The language of teaching and assessment is Greek.
- 6. Number of students admitted to the MA per year: fifteen (15)

# **Study Regulations**

Postgraduate studies are organized according to the Postgraduate Study Regulations of the University of Cyprus. (see relevant Regulations).

#### **M.A. Degree Requirements**

- The Department appoints an Academic Advisor for every new postgraduate student.
- The minimum period of full-time study for the M.A. is three semesters.
- Successful completion of 120 credits of the European Credit Transfer System (ECTS) is required for the M.A. degree. These are allocated as following:

Total		120 ECTS
Preparation and writing of the dissertation I and Preparation and writing of the dissertation II 21	+ 30 =	51 ECTS
Participation-presentation of the research proposal at the Colloquium	1 X 3 =	3 ECTS
Independent Study	1 X 3 =	3 ECTS
Taught Courses	7 X 9 =	63 ECTS

The programme may be offered either on a full-time or part-time basis. Students (either full-time or part-time) have to follow the programme as organized (see below). The general postgraduate study regulations are applicable as regards the general work load.

Part-time students may begin writing their dissertation after the completion of six of the seven compulsory courses of the programme.

#### **Suggested Programme of Studies**

	ECTS
First Semester	
3 courses from two categories of courses X 9 ECTS (optionally: 3 courses from one category of courses X	27
9 EC (3)	2/
independent study and participation at the Colloquium	3
Total	30
Second Semester	
3 courses from two or three categories of courses X 9 ECTS (optionally: 3 courses from a different category from the one that has been followed during the	
previous semester X 9 ECTS)	27
Presentation of the research proposal / of the	
Independent Study at the Colloquium	3
Total	30
Third Semester	
1 course from the offered categories of courses X 9 ECTS	9
M.A. Dissertation I X 21 ECTS	21
Total	30
Fourth Semester	
M.A. Dissertation II X 30 ECTS	30
Total	30

#### **Crediting ECTS from a Previous M.A. Degree**

Postgraduate students who already hold an M.A. degree from a recognized university, in another discipline are entitled to request exemption from courses attended during their previous degree, for up to 15 ECTS. The Department will examine applications and if possible, the ECTS will be deducted from the work load of courses of the programme.

## **Submitting an Application**

Applications are submitted to the Coordinator of the Postgraduate programme during the dates the University sets as advertised in the press and/or the University and departmental website. Applications must include the following:

- (a) Copy of the university degree or certification of forthcoming graduation
- (b) Grades for courses attended in the first and/or M.A. degree
- (c) Short Curriculum Vitae

- (d) Two undergraduate essays or published work in Modern History
- (e) Proof of good knowledge of English, and of other languages
- (f) Letters of reference from at least two academics
- (g) Short statement (up to two pages) of research interests of the candidate and research proposal

# **Calculation of the Workload (ECTS)**

The unit of credit is based on the calculation of the student workload during of every semester. One ECTS unit is equivalent to 25-30 hours work per semester. Consequently, courses of 9 ECTS correspond to 225-270 hours of work, and are allocated as follows:

### A. For Courses with Codes HIS 720 - 740 (9 ECTS)

- 3 hours of teaching X 13 weeks: 39
- 6 hours of meetings for academic guidance: 6
- Study time required during the semester (10 hours preparation for every course per week average, including the study and the preparation for presentations, presentation of the essay for every course, and the time for archival and bibliographical research required for the writing of the essays): 140
- Preparation and writing of the final essay for every course: 60

Total working hours per course per semester: 245

# B. HIS 808 Independent Study / HIS 809 Colloquium (3 ECTS)

- 1,5 hours attendance X 13 weeks: 19,5
- 2 hours of meetings for academic guidance: 2,5
- Study time required during the semester (total 40 hours preparation for the independent study / the research proposal, including the study and preparation for the presentations at the course and the time of archival and bibliographic research, required for the writing of the independent study/research proposal): 40
- Preparation and writing of the independent study/research proposal for the MA dissertation: 18

Total working hours per course per semester: 80

### C. HIS 810 Preparation and Writing of the MA Dissertation I (21 ECTS)

- Meeting with the research advisors: 26
- Research [indicatively: Locating and reviewing the existing bibliography, selection and application of the research methodology, finding primary material in archives and private collections.] Photographing material, indexing. Documentation and cross-checking information. Familiarization with software programmes (when necessary): 300
- Writing pilot parts of the dissertation: 254

Total: 580

#### D. HIS 811 Preparation and Writing of the M.A. Dissertation II (30 ECTS)

- Meeting with the academic advisors: 39
- Research [indicatively: Finding and review of existing bibliography, selection and application of the research methodology, finding primary material in archives and private collections]. Photographing material, indexing. Documenting and cross-checking of information. Familiarization with software programmes (when needed): 271
- Writing of the dissertation: 460

Total: 770

# **Doctor of Philosophy Degree**

#### Criteria for Admission to the Ph.D. Programme

1. The candidates must hold an M.A. degree in History from a recognized University. Candidates whose M.A. degree is in other fields (such as Political Science, European Studies or Turkish Studies) and who fulfill all the criteria of the programme, may also apply.

Candidates whose M.A. degree is in fields other than the above may also apply for a Ph.D. in the history of their specialization in Cyprus and/or the Greek World during the modern and contemporary periods. These candidates will be supervised in cooperation with academic staff of the relevant departments.

2. Good knowledge of the English language is required. The knowledge of a second European language will be considered an added qualification. Admission to the programme: A committee comprised of the permanent academic staff teaching in the programme will be responsible for the evaluation of the applicants. This committee reserves the right to invite candidates for an interview and/or a written examination.

# Requirements and Organisation of the Ph.D. Programme

Course attendance: Students with an M.A. degree or equivalent in Modern and/or Contemporary History or other relevant M.A. degree, who satisfy all the requirements of the programme, are exempted from the obligation of attending courses. Candidates may be required to attend M.A. degree programme courses, if the Department considers this necessary for the candidate's research.

Colloquia: Within the framework of the programme a cycle of scholarly meetings (colloquia) will be held. M.A. and Ph.D. students, academic staff and visiting academics will participate in these meetings and present their research. Ph.D. students must present their research proposal and/or part of the Ph.D. dissertation during this cycle of meetings.

# **Contact Details Programme Coordinator for GSP** George Kazamias Tel.: 22892184 Fax: 22895078 e-mail: g.kazamias@ucy.ac.cy

# Ph.D. DEGREE IN ANCIENT HISTORY

Candidates for the programme must hold an MA in Ancient History from the University of Cyprus or from a recognized university abroad. Alternatively, candidates may have an MA in Classical Archaeology from a recognized university abroad or an MA in Mediterranean Archaeology from the University of Cyprus. All candidates must submit their Curriculum Vitae indicating publications, as well as a short summary (up to three pages, in Greek or in an international language) analysing and explaining the subject that they intend to investigate in their dissertation. If the PhD will be a continuation of the MA thesis, the content of the dissertation must be explained in depth. The selection of candidates is made by a Special Committee after the interviews. The Committee consists of four academic members of the University of Cyprus: two professors in the Department of History and Archaeology and two professors in the Faculty of Letters.

# **Contact Details**

#### **Programme Coordinator for GSP**

Theodoros Mavroyiannis Tel.: 22892183 e-mail: theomav@ucy.ac.cy

### INTERDEPARTMENTAL POSTGRADUATE PROGRAMME IN BYZANTINE STUDIES

(see page 278)

# **Contact Details**

# Programme Coordinator for the Department of History and Archaeology

Alexander Beihammer Tel.: 22892177 Fax: 22895078 e-mail: abeihamm@ucy.ac.cy

# **Research Interests of the Academic Staff**

# Alexander Beihammer Associate Professor

Analysis and edition of documents of Byzantine diplomatics. Diplomacy in the Byzantine State, especially diplomatic and cultural relations with the Arab world. The institutions and society of the Middle Byzantine period.

# Natasha Constantinidou Lecturer

History of (western) Europe, 1600-1800.History of religious and intellectual movements (the Renaissance, the Reformation, the religious wars of the 16th and 17th centuries and their implications, scientific discoveries, etc.), intellectual history, history of political thought, cultural history, history of the book. Relationship between politics and religion, church and state, circulation of ideas, communication networks and intellectual exchanges, patronage and ideology (ideology expressed in

texts, rituals and pageants, images and iconography), cultural and intellectual production of royal and religious courts, rise of the dynastic states.

## Stella Demesticha

#### Assistant Professor

Maritime archaeology with focus on shipwrecks, amphorae, ancient sea routes, trade mechanisms and economy in the Eastern Mediterranean, Late Roman pottery, ancient and preindustrial ceramic technology.

#### • Euphrosyne Rizopoulou-Egoumenidou Professor

Folk art and architecture, pre-industrial technology, material life of the recent past and the folk culture of Cyprus and the wider Mediterranean area in general. Study of 18th/19th cent. ethnographic material through the written sources.

#### Giorgos Georgis

#### Associate Professor

Diplomatic History, History of Greek-Turkish Relations in the 19th century, History of Cypriot and Greek political parties, Modern Cyprus History, especially the National Movement (1878-1959).

### Maria lacovou

#### Professor

The historical dimension of the passage from Prehistory to Protohistory. Cyprus Protohistory and the foundation of the city-kingdoms in the 11th century B.C. Ceramic typology of the Late Bronze Age and the Early Iron Age. Distribution of 11th century Cypriot pottery in the Mediterranean. Historical cartography and the topographical development of the cities in Cyprus.

#### Maria Kantirea

#### Assistant Professor

Greek and Latin Epigraphy. Ancient religion, cult of Hellenistic rulers and Roman emperors. Roman history: institutions of Greek cities and Roman colonies of the eastern provinces of the Roman Empire, prosopography of the Imperial period.

#### Vassiliki Kassianidou

#### Associate Professor

Extractive metallurgy, ancient technology, conservation of metals, production and trade of Cypriot copper in Antiquity.

#### George Kazamias

#### Associate Professor

Contemporary European History (WWII, Cold War, Unification of Europe, Europeanization), History of South-Eastern Europe (19th - 20th c.), Greek Minorities, Diaspora and Refugees in the Balkans, Eastern Mediterranean and the Middle East, Oral History.

# Aggel Nicolaou-Konnari Assistant Professor

Hellenism under Latin rule. This mainly involves the various aspects of cultural interaction and exchanges between Greeks and Latins in Latin Greece in general and Cyprus in particular (late twelfth-seventeenth centuries) and related phenomena in the domains of language, religion, and social institutions as well as ethnicity, self-perception, and the perception of the Other. - The important corpus of Cypriot historiographers (late twelfth-eighteenth centuries). - A prosopographical study of the Cypriots in the Middle Ages and Early Modern Times and particularly of the Cypriots of the diaspora (sixteenth-eighteenth centuries). - The place of women in Latin Greece and particularly Cyprus.

#### Ourania Kouka

#### Assistant Professor

Historiography of Prehistoric Archaeology in Europe and the Eastern Mediterranean. Theoretical and Methodological Approaches in Prehistory. Stone and Bronze Ages in the Aegean, Anatolia and the Eastern Mediterranean. Island Archaeology. Inter- and intra-site organisation in Prehistory. Policy, economy and society in Prehistory. Industrial installations, early metallurgy, ceramic technology in Prehistoric Aegean and Anatolia. Trade and cultural networks in the Balkans and the Eastern Mediterranean during the Stone and Bronze Ages.

#### Theodoros Mavrogiannis

#### Associate Professor

The history of ancient historiography; the history of the Hellenistic and Roman East; the monumental topography of Greece and Italy; ancient religion and epigraphy.

#### • Demetrios Michaelides Professor

Hellenistic and Roman mosaics and frescoes; the ancient trade in marble, amphoras and worked seashells; the topography of Hellenistic and Roman Cyprus; the topography of Nicosia.

#### • Petros Papapolyviou Associate Professor

Contemporary Greek History (WWII: Occupation and Resistance, Civil War, Greek National Claims), Political History of Cyprus, 1878-1960 (British Rule, Enosis movement, Liberation Struggle 1955-1959, Cypriot Volunteerism).

#### • George Papasavvas Associate Professor

Metalwork of the Late Bronze Age and Early Iron Age, Bronze Sculpture, Sculpture of the Archaic and Classical Periods, Greek Structures, Relations between the Aegean and the Eastern Mediterranean in the Early Iron Age.

# Maria Parani

#### Assistant Professor

Formation processes of Byzantine art, representation of realia, the relationship between centre and periphery in Byzantine art in Cyprus, cultural exchange in the fields of court ceremonial, dress and art, daily life in Byzantium and the exploration of alternative sources for the study of Byzantine material culture, Byzantine dress.

#### Chris Schabel

#### Associate Professor

Medieval and Renaissance intellectual history (philosophy, theology, science and educational institutions), History of Cyprus 1191-1571, textual criticism, Medieval Latin Palaeography.

# Athanasios K. Vionis

#### Lecturer

Methodological approaches to the study of urban and rural landscapes and material culture of the Byzantine and post-Byzantine Aegean and the Eastern Mediterranean (6th-19th c. AD): the transition from Late Antiquity to the Early Middle Ages; the archaeology of death (pagans and Christians); the archaeology of identity (social, religious, ethnic); war, defence, the built environment (cities, castles, towers, rural settlementsvillages) and the use of domestic space; urban and rural life-ways and economy through the sources (texts – pictorial evidence – material culture); the history and archaeology of food consumption; technology/production – distribution – use of ceramic vessels.

## **Contact Details**

#### **Department Secretariat**

Eleni Hadjistylianou Tel.: 22892180 Fax: 22895078 e-mail: isa@ucy.ac.cy

Crissa Gregoriou Tel.: 22893560 Fax: 22674101 http://www.ucy.ac.cy/hisarch-en

# THE ARCHAEOLOGICAL RESEARCH UNIT

The Archaeological Research Unit (A.R.U.) collaborates with scholarly organisations in Cyprus and abroad to realize its research objectives. In Cyprus this cooperation involves various governmental services (e.g., the Department of Antiquities and the Geological Survey Department), local authorities (e.g., the Municipality of Yeroskipou, the Community of Kouklia) and other departments of the University of Cyprus. Abroad, the A.R.U. works with scholars from various European, American and Australian universities and research centres.

The range of research foci is determined in accordance with the areas of specialization of the members of the A.R.U. and in view of the need to investigate sectors of Cypriot archaeology that have not yet been studied in depth.

In addition, members of the academic faculty and students of the Department participate in and conduct archaeological excavations in Cyprus and abroad (Greece, Turkey).

For information on the research programmes please visit the Archaeological Research Unit and Department of History and Archaeology websites.

# Director

Professor Demetrios Michaelides

# **Contact Details**

Archaeological Research Unit Secretariat Crissa Gregoriou Tel.: 22893560 Fax: 22674101 e-mail: archlgy@ucy.ac.cy http://www.ucy.ac.cy/aru-en







The Department of Byzantine and Modern Greek Studies and the Department of History and Archaeology offer a joint specialised postgraduate programme in Byzantine Studies leading to an M.A. and/or Ph.D. degree.

The goal of the programme is to promote interdisciplinary approaches in the various fields of Byzantine Studies. More specifically, the programme aims at a multilevel and multifaceted study of Byzantine culture that combines the various theoretical and practical methodological tools of Philology, History, History of Art and Archaeology. In this way, the historical phenomenon "Byzantium" is firmly placed within the broader geographical framework of Medieval Europe and the Middle East.



# Aim of the Programme

The programme is run by members of the two Departments in the following fields of specialisation: Byzantine Language and Literature, Byzantine History, Medieval History, Byzantine and Post–Byzantine Art and Archaeology. Moreover, seminars may be offered by members of the University's academic staff in related fields (e.g., Ancient History, Classical Philology, Ottoman and Islamic Studies, Theory of Literature, Historical Linguistics) or by visiting professors.

In order to ensure that the students become acquainted with the full range of the three fields and the various methodological approaches involved, the seminars offered in the programme are organised in five thematic modules. These are not only related to different aspects of Byzantine culture, but they also allow for the combination of all the fields and methods mentioned above: (A) Editorial Techniques and Auxiliary Disciplines; (B) Theory and Aesthetics; (C) State and Society; (D) Culture and Ideology; (E) Byzantine and Medieval Cyprus.

# MASTER OF ARTS (M.A.) IN BYZANTINE STUDIES

## **Admission Requirements**

- 1. A completed application form, which can be obtained online.
- 2. Documentary evidence of academic performance, including official degree transcripts and a detailed list of the courses taken at the undergraduate level. B.A. in Byzantine Philology, History, Archaeology, History of Art, Classical Studies or another related field required (First or Upper second class).
- 3. Brief Curriculum Vitae and statement of academic and research interests.
- Sample of written work, namely an essay on a topic of the candidate's choice in Byzantine Literature, History, Archaeology, History of Art, Classical Studies or another related field.
- 5. Two letters of recommendation from specialists, preferably university faculty or other established scholars.
- 6. In addition to Greek, satisfactory knowledge of two other languages from the remaining five international languages of Byzantine Studies (English, French, German, Italian and Russian). Submission of the related certificates (e.g., GCE A level or TOEFL for English, Delf 2–4 for French, Mittelstufe for German, etc.) is required.

7. If deemed necessary by the faculty of the M.A. programme, the candidate may be invited to an interview.

#### **Academic Requirements**

- 1. The programme comprises 120 ECTS (1 ECTS = 25 working hours).
- 2a. Of these, 90 ECTS are acquired via the successful completion of 9 postgraduate seminars (9x9 ECTS = 81) and participation in the "Workshop of Byzantine Studies" for the duration of three semesters (3x3 ECTS = 9). For the "Workshop" see below (§ 4c).
- 2b. The 225 hours corresponding to the 9 ECTS per seminar are allocated as follows:
  - 39 hours: contact hours in the seminar
  - 117 hours: research and preparation of the essay
  - 69 hours: writing the essay
- 2c. The 75 hours corresponding to the 3 ECTS for participation in the "Workshop on the Byzantine Studies" per semester include:
  - 30 hours: contact hours in the "Workshop on Byzantine Studies"
  - 45 hours: preparation of presentations in the "Workshop on Byzantine Studies"
- 3a. The remaining 30 ECTS are acquired via the successful completion of the M.A. thesis.
- 3b. The 30 ECTS corresponding to the M.A. thesis are allocated as follows:
  - 20 ECTS: research and writing the M.A. thesis
  - 6 ECTS: regular attendance at the "Workshop on Byzantine Studies" (3 hours per week)
  - 4 ECTS: preparation for the defence of the M.A. thesis (see below, "A4d)
- 3c. The extent of the M.A. thesis should be around 12,000–15,000 words, not including bibliography. It should not exceed 50 pages in total.
- 4a. The students are required to attend 9 seminars in total, from at least four different thematic modules. It is also obligatory to attend at least two seminars from each of the three fields of Byzantine Studies.
- 4b. At least four seminars from the listed thematic modules will be offered each semester.
- 4c. In addition to the seminars, there will be a "Workshop on Byzantine Studies" in which members of the Faculty, invited researchers and Ph.D. candidates will

present their research. M.A. students are required to participate with their own contributions.

- 4d. During the fourth semester of their studies students present their M.A. theses at the "Workshop." This presentation is part of their final evaluation for the degree. Each academic year, the presentation of the theses by the M.A. candidates will take the form of a short conference open to the public. The "Workshop" as well as the conference may be organised by Ph.D. candidates in cooperation with a member of the faculty.
- 4e. An M.A. thesis in Byzantine Philology bears the standard code number BMG 590, in Byzantine and Medieval History HIS 590, and in Byzantine and Post– Byzantine Art and Archaeology ARC 590.

#### **Programme of Studies**

The Programme lasts four semesters (full-time).

#### **First Semester**

Participation in three postgraduate seminars (3x9 ECTS) and in the "Workshop on Byzantine Studies" (3 ECTS)

#### Second Semester

Participation in three postgraduate seminars (3x9 ECTS) and in the "Workshop on Byzantine Studies" (3 ECTS)

#### **Third Semester**

Participation in three postgraduate seminars (3x9 ECTS) and in the "Workshop on Byzantine Studies" (3 ECTS)

#### **Fourth Semester**

Preparation and composition of the M.A. thesis under the academic supervisor (30 ECTS). Oral presentation and submission of the M.A. thesis (see above, § 4d)

# **Programme Structure**

#### **1. Fields and Thematic Modules**

The postgraduate programme combines two teaching systems: (a) a vertical system defined by the three main fields of humanist studies (Philology, History, Art and Archaeology), and (b) a horizontal system covering the five thematic modules mentioned above. The vertical system ensures the in-depth study of more specialised research problems, while the horizontal system supports the broader interdisciplinary approach.

The vertical system is revealed by the three letters of a seminar's code number (BMG: Byzantine Philology, HIS: Byzantine and Medieval History, ARC: Byzantine Art and Archaeology). The horizontal system is reflected in the

relevant grouping of the three digits of the code number. More specifically, the postgraduate seminars are allotted to the five thematic modules as follows:

#### 2. Thematic Modules and Postgraduate Seminars

#### 2.1 Editorial Techniques and Auxiliary Disciplines (code nos. 500–514)

The seminars of this module focus on editorial theory and practice for medieval texts in the broadest sense of the term (Greek, Latin, French, Italian, Arabic, Ottoman), the study of palaeography, codicology and diplomatics, as well as other auxiliary disciplines, such as epigraphy, sigillography and numismatics. Through a theoretical approach various practical issues are examined, such as the following: the nature of medieval texts and their relation to their respective "carriers"; the nature of the "carriers" as archaeological objects; the editorial problems of texts preserved in only one or in multiple manuscripts; questions of medieval orthography, punctuation and metre; the place of manuscripts, coins and seals in Byzantine society; the specific interpretative problems of these textual and visual objects.

BMG 500 Editorial Theory and Practice

- BMG 501 Greek Palaeography and Codicology
- HIS 502 Latin Palaeography and Diplomatics
- HIS 503 Byzantine Diplomatics
- ARC 504 Epigraphy
- ARC 505 Sigillography and Numismatics
- ARC 506 Survey of Research and Interpretative Approaches to Byzantine Archaeology
- ARC 507 The Study of Ceramics in Byzantine Archaeology
- BMG 509 Editorial Problems of Ecclesiastical Poetry
- BMG 510 Michaelis Pselli Orationes Funebres
- BMG 511 Patriarchal Documents of Constantinople

#### 2.2. Theory and Aesthetics (code nos. 515-529)

Seminars belonging to this thematic unit deal with issues concerning theory and aesthetics in the Byzantine world. The term "theory" in this case has a twofold meaning: it refers both to the literary and artistic theories formed by the Byzantines themselves and to the application of modern critical theories to the interpretation of the artistic and literary products of Byzantine civilisation. Thus, in the framework of this unit seminars examine, for instance, ancient rhetorical theories and their use in literary criticism by Byzantine authors, and philosophical and theological theories about icons. The seminars also investigate other more general issues, such as taxonomical problems and narrative approaches, as well as more specific topics concerning the various literary genres or modes of artistic expression.

BMG 515 Theory and Criticism of Literature in Byzantium

- ARC 516 Byzantine Icon Theory
- BMG 517 Byzantine Literature: Problems of Categorisation
- BMG 518 Genre Issues
- BMG 519 Byzantine Narratives
- BMG 520 Language and Literature
- BMG 521 Performance and Literature
- HIS 522 Historiography and Historical Thought in Byzantium
- BMG 523 Hagiographical Genres
- BMG 524 Religious Poetry and Hymnography
- BMG 525 Byzantine Autobiographical Discourse
- ARC 526 Facets of Reality in Byzantine Art
- ARC 527 Byzantine Architecture: Principles for the Formation and Use of Space
- BMG 528 Theory and Aesthetics of Byzantine Music
- ARC 529 Byzantine "Secular" Art

#### 2.3 State and Society (code nos. 530–549)

This unit focuses on issues of political, social, and economic history, such as continuity and change in the transition from Late Antiquity to Early Byzantium, the clash between Christianity and paganism, the relationship between Church and State, contacts with other cultural and political environments, and the passage from Byzantium to Modern Greece. The unit also includes the internal history of institutions (State bureaucracy, law courts, dependent peasantry, Church, monasticism), social history (gender roles, dress, patronage), economic history (agriculture and commerce), as well as topics concerning the influence of external factors on Byzantium (the rise of Islam, the Crusades, the Italian trading cities).

- HIS 530 State and Society
- BMG 531 Byzantine Law
- HIS 532 The Economy in the Medieval World
- HIS 533 The Crusades
- HIS 534 Latin Rule in Greek Lands
- BMG 535 Byzantine Masculinities and Femininities
- BMG 536 Private and Public Space in Daily Life
- ARC 537 "The Social Life of Things" in Byzantium
- BMG 539 Monastic Organisation
- HIS 540 Latins and Greeks in the First Crusade (1073–1111)
- HIS 541 The Latin Empire of Constantinople
- BMG 542 The Image of the Other in Byzantine Literature
- ARC 543 Dress: The Mirror of Byzantine Society

- BMG 544 Byzantine Outsiders
- ARC 544 Byzantine Diet
- ARC 546 The Archaeology of Byzantine Economy
- ARC 547 Byzantine Fortifications
- HIS 548 Social History of the Latin East (11th-13th Centuries)
- ARC 549 Art and Identity at the Time of the Crusades

#### 2.4 Culture and Ideology (code nos. 550–569)

In the framework of the seminars of this unit some of the most important aspects of Byzantine culture and ideology are investigated. Through the examination of both culture and ideology the unit aims at a better understanding of cultural attitudes and mentalities, the Byzantines' relation to both themselves and their world, and also the ideas that determined the intercultural relations between Byzantium and its geographical neighbours in both East and West.

- HIS 550 Byzantium and Islam: Conflicts and Exchanges
- HIS 551 Oriens et Occidens
- HIS 552 Imperial Ideology
- BMG 553 The Rhetor and His Audience
- BMG 554 Emotions and Mentalities
- ARC 555 Personal Piety
- BMG 556 Representations of the Body
- BMG 557 Representations of Death
- ARC 558 From Paganism to Christianity
- ARC 559 The Archaeology of Death in Byzantium
- ARC 560 Byzantine Material Culture and Identity
- BMG 561 The Image of Women in Byzantine Literature
- ARC 562 Portraits of Women in Byzantine Art
- BMG 563 The Ruler in Byzantine Literature
- ARC 564 The Art of Propaganda and Diplomacy
- BMG 565 Education in Byzantium
- HIS 566 Contra errores Graecorum
- BMG 567 Conquests of Cities
- HIS 568 Historiography in the Latin-Ruled Greek World: Historicity and Ideology

#### 2.5 Byzantine and Frankish Cyprus (code nos. 570–585)

In this unit Cyprus is examined within the wider social, historical, and cultural context of the Mediterranean. Combining the hermeneutical approaches of the three scholarly fields of the postgraduate programme, special methodological emphasis is devoted to the investigation of the connection between the centre and the periphery as well as the understanding of the unique nature of a place at the crossroads whose history and culture were shaped by a variety of influences.

- HIS 570 Byzantine Cyprus
- HIS 571 Frankish Cyprus
- HIS 572 The Ecclesiastical History of Cyprus
- ARC 573 Relations between Centre and Periphery: Byzantine Art in Cyprus
- ARC 574 Cyprus and the Eastern Mediterranean: Byzantine Landscape Archaeology
- ARC 575 Early Byzantine Cyprus: Art and Archaeology
- BMG 575 Epiphanios of Salamis
- HIS 576 Byzantine Cyprus in the Dark Ages (600–965)
- BMG 577 Cypriot Hagiographical Texts
- BMG 578 Neophytos the Recluse
- HIS 579 Greeks and the Byzantine Tradition in Frankish Cyprus
- HIS 580 The Ecclesiastical History of Cyprus 1191–1374
- HIS 581 Historiography of Cyprus
- BMG 582 Cypriot Scholars of the 13th and 14th Centuries
- HIS 583 Women in Latin-Ruled Cyprus (13th-16th Centuries)
- ARC 584 Art in Medieval Cyprus during the Period of Latin Rule

# **Seminar Descriptions**

#### 1. Editorial Techniques and Auxiliary Disciplines (code nos. 500–514)

#### BMG 500 Editorial Theory and Practice

This seminar examines the problems involved in editing Byzantine texts from a broad theoretical perspective, in contrast to the traditional methods of reconstructing "textual archetypes." Following an in–depth study of various editorial theories, students are asked to edit passages from prose and poetry in the learned and the vernacular idioms.

#### **BMG 501 Greek Palaeography and Codicology**

By focusing on specific areas of manuscript production, this seminar examines specialised issues in the history of scripts and books in the Byzantine world. For example, students have to study in detail such issues as the minuscule of the 9th century, the role of intellectuals in the production of books during the Palaeologan era, scribes and manuscripts in Cyprus (11th–15th centuries), and the manuscript as an archaeological object.

#### HIS 502 Latin Palaeography and Diplomatics

After an historical survey of the Latin scripts from Late Antiquity to the invention of movable print in the 15th century, this seminar investigates various genres of Latin documents and texts from the Middle Ages in manuscript form. Special emphasis is placed on transcription, with a goal to edit the texts and create the pertinent scientific apparatus.

#### **HIS 503 Byzantine Diplomatics**

This seminar provides students with the necessary skills for the scholarly investigation of official acts of the Byzantine State. In particular, we discuss the different forms of transmission of archival sources and the external and internal characteristics of official acts according to the usages of each issuing authority (for example, imperial and ecclesiastical acts, acts of public officials, and private acts). In addition, we treat research problems relating to the terminology and content of the documents. Finally, we present the modern techniques employed in the scholarly edition of documents.

#### **ARC 504 Epigraphy**

The Byzantines left us texts inscribed on stone, metal and ivory or painted on wood and mortar. The objective of this seminar is to familiarise students with Byzantine epigraphic material and to cultivate their skills in reading and dating Byzantine inscriptions based on their formal characteristics.

#### **ARC 505 Sigillography and Numismatics**

This seminar examines Byzantine seals (sigillography) and coins (numismatics). Through their inscriptions and iconography, the surviving gold and lead seals are witnesses to the bureaucratic structure and functions of the imperial and ecclesiastical establishments and provide invaluable information on the prosopography of the Byzantine Empire. The seminar also investigates the typology of Byzantine coins, the financial and other factors that governed their issue and circulation, and the role of coinage as a vehicle of the official imperial political and religious ideology.

#### ARC 506 Survey of Research and Interpretative Approaches to Byzantine Archaeology

Beyond the materiality of archaeological remains and their positivist documentation, byzantine culture, very much like any other culture, encompasses symbolic meanings and ideas. Despite the fact that byzantine archaeology was for a long time located on the periphery of modern archaeological research, it has recently begun to acquire a new dimension in the international academic arena as it is applying methodological approaches and interpretative models "borrowed" from other fields of research such as history, anthropology, sociology and psychology. The aim of this seminar is to (a) examine the interpretative approaches and advances in byzantine archaeology in the international sphere of archaeological research, and (b) to evaluate the methodological approaches that are currently followed for understanding the byzantine material remains through the exploration of specific casestudies.

#### ARC 507 The Study of Ceramics in Byzantine Archaeology

Pottery is the most common find in an archaeological excavation. While the study of byzantine and post-byzantine ceramics had for a long time been overlooked, now its precise chronology is being continually refined. The aim of this seminar is the examination of the typo-chronology of byzantine and post-byzantine common- and table-wares, as well as the

evaluation of the information they provide for understanding byzantine society.

#### **BMG 509 Editorial Problems of Ecclesiastical Poetry**

In comparison to other Byzantine literary genres, ecclesiastical (liturgical) poetry was used more extensively and hence it was copied more frequently. Therefore, the determination of the archetype of a liturgical hymn is a difficult and sometimes unreachable goal. This seminar familiarises students with the process of the textual criticism of ecclesiastical hymns and with the pertinent editorial techniques. Multiple problems are studied, such as the detection of the stemmatic relation of their known manuscripts and, where possible, the establishment of the archetype. At the same time, the seminar examines the morphology of hymns, their metric structure and their relation to biblical and patristic texts in prose or in verse.

#### **BMG 510 Michaelis Pselli Orationes Funebres**

This seminar focuses on editorial issues relating to the nineteen preserved funeral orations of Michael Psellos (1018–1079). In the first stage, the palaeographical and codicological problems of the manuscripts preserving these works are examined, and the problems inherent in the available editions, but also the linguistic and literary characteristics of this highly artful funerary corpus, are discussed. In the second stage, students are asked to prepare a full critical edition of one of the lengthier orations.

#### **BMG 511 Patriarchal Documents of Constantinople**

This seminar comprises the perusal (from the original), edition and interpretation of the only preserved part of the hieron kodikion (covering the period 1315–1402) in which the decisions of the Synodos endemousa of Constantinople were written down. Special emphasis is placed on the social, historical and intellectual context of the documents.

## 2. Theory and Aesthetics (code nos. 515–529)

#### BMG 515 Theory and Criticism of Literature in Byzantium

This seminar examines Byzantine attitudes to literature through the study of theoretical works (e.g., rhetorical handbooks, commentaries on ancient and medieval texts) and of critical essays on specific texts or authors by Byzantine intellectuals (e.g., Photios, Michael Psellos, Theodore Metochites). At the same time, the seminar examines the Byzantines' notions of poetics as these take shape in the texts themselves and through their authors' own poetological statements.

#### **ARC 516 Byzantine Icon Theory**

The Byzantines' perception of the role of religious art dictated, to a large extent, the latter's formal characteristics and iconography. Through the study of relevant written sources and the analysis of works of art, the principles that governed the creation of religious images in Byzantium are investigated and the stages of the theoretical discussion that led to the definition of the role of religious images within the context of Orthodox worship are explored.

#### BMG 517 Byzantine Literature: Problems of Categorisation

This seminar investigates certain pairs of concepts (literature vs. non-literary texts, vernacular vs. learned language, secular vs. theological literature, prose vs. verse and historiography vs. chronography) and examines their multiple interrelations. The questions whether and how modern models of categorisation can be applied to Byzantine literature are given special emphasis.

#### **BMG 518 Genre Issues**

Genre constitutes an important tool in the study, the reception and interpretation of literature. However, Byzantinists have shown little interest in the history and development of the literary genres produced in Byzantium. In the framework of this seminar, issues referring to Byzantine literary genres and their interrelations are thoroughly discussed.

#### **BMG 519 Byzantine Narratives**

This seminar examines (through the use of narratological theory) the various narrative techniques and structural devices used by Byzantine authors to construct a narrative. During the seminar students read such texts as historiographical works, lives of saints, romances and epic narratives. The seminar includes comparisons of Byzantine narratives with respective Western and Eastern medieval works (e.g. French vernacular historiography and hagiography, French and German romance, Arab prose epics and oral story-telling, Persian romances).

#### **BMG 520 Language and Literature**

This seminar examines the diachronic changes in medieval Greek and the formation of dialects as well as the development of the written language, which had to strike a balance between the constantly changing necessities of everyday communication and the ambitions of conservative education and literature based on antique models. Special emphasis is placed on the analysis of a wide range of different linguistic and stylistic levels of the written language.

#### **BMG 521 Performance and Literature**

In contrast to other ancient literary genres, drama was not produced in Byzantium. Theatrical elements can be detected in many Byzantine genres, however, such as historiography, chronography, saints' lives, miracle stories and hymnography. In this seminar, the theatrical and performative dimensions of Byzantine literature are examined.

#### HIS 522 Historiography and Historical Thought in Byzantium

In this seminar we investigate, on the one hand, the theories of the Byzantines about their past and the ideological principles that governed the composition of historiographical texts in Byzantine society. On the other hand, we examine how the Byzantines' own conceptions of their past might have influenced even modern research with regard to the choice of research topics and hermeneutical models. More generally, we intend to question the limits of our knowledge on issues concerning the political, social, and economic history of Byzantium.

#### BMG 523 Hagiographical Genres

Hagiographical genres were very popular in Byzantium. The study of these genres not only provides us with valuable information concerning their production, their audiences and literary tastes in Byzantium, but also helps bring to the fore some very interesting texts of high literary value.

#### **BMG 524 Religious Poetry and Hymnography**

This seminar focuses on the history and the role of religious and ecclesiastical poetry in the intellectual life of Byzantium. The form and content of this poetry is studied through representative religious and ecclesiastical hymns from the beginning of the Christian era until the end of the Byzantine Empire. Based on selected genres of Byzantine hymnography, we examine the following issues: the origins of this hymnography, the conditions and reasons that led to the development and decline of special forms, as well as the hymnographical production, innovative choices and particularities of well–known poets and melodists.

#### BMG 525 Byzantine Autobiographical Discourse

This seminar examines the different ways of selfrepresentation in literary and non–literary texts. These different ways are closely connected with specific Byzantine mentalities and the possibilities of conceiving the Self. To understand Byzantine autobiographical writing, an investigation into contemporary conventions that define one's self–image are indispensable.

#### ARC 526 Facets of Reality in Byzantine Art

The Divine Liturgy and public cult, historical events and social problems, daily life and material culture are all aspects of contemporary reality that are reflected in Byzantine art. Their exploration not only reveals the multi-layered symbolism of this art, but also enhances our understanding of its formation.

#### ARC 527 Byzantine Architecture: Principles for the Formation and Use of Space

Byzantine architecture shaped spaces, whether interior or exterior, public or private, secular or religious. This seminar examines their formal characteristics not only in relation to the practical needs they were meant to satisfy or the technical expertise available for their creation, but also in association with the world-view, the religious beliefs, the social structures and the political ideology of the Byzantine State and society.

#### BMG 528 Theory and Aesthetics of Byzantine Music

This seminar introduces students to one of the most inaccessible areas of Byzantine culture. Initially, the various ancient Greek mathematical and philosophical theories on music and harmony are presented as they were received and reformulated by the Byzantines. Next, the theoretical treatises on the art of ecclesiastical chant in Byzantium and the Byzantines' aesthetic notions about music are discussed. Finally, through the examination of Byzantine musical manuscripts, various testimonies in textual sources (e.g., information about instruments and musicians), as well as visual and ethnomusicological material, music in Byzantium inside and outside of liturgical practice are studied.

#### ARC 529 Byzantine "Secular" Art

It is commonly thought that byzantine art, architecture included, was predominantly religious art and that its main purposes were the expression and dissemination of Christian dogma and the consolidation of the position of the Church. Nevertheless, works of art with a non-Christian content or character were created throughout the byzantine millennium, ranging from palaces and public buildings to ivory caskets adorned with mythological themes. This seminar focuses on the study of such works. Theoretical issues concerning the definition of the term "secular" within the context of a Christian-centric culture will be examined parallel to issues relating to the typology, iconography, function, and reception of secular art in Byzantium.

#### 3. State and Society (code nos. 530–549)

#### HIS 530 State and Society

This seminar focuses on the specifics of the State machinery and social structures in medieval political units. On the basis of selected examples from Byzantine history, we investigate fundamental notions, such as the bearers and exertion of State authority, the meaning of sovereignty, the dissemination and implementation of political decisions, the role of ceremony in political life, and so on. The second part of the seminar involves phenomena of the social stratification of Byzantium, such as the concept of social class, the self-perception of social groups, as well as their relationship with imperial authority.

#### **BMG 531 Byzantine Law**

This seminar provides an introduction both to the principles of Byzantine law (Justinian's Code and its Byzantine redactions, canon law) and to legal institutions (e.g., law courts), as well as to Byzantine jurisprudence (judicial decisions, opinions, etc.). Moreover, we examine texts witnessing everyday judicial procedures that concern primarily family and inheritance law (court decisions, wills), and which highlight the strained relations between legal theory and social reality.

#### HIS 532 The Economy in the Medieval World

The Byzantine economic system, just as that of every other medieval state, was based to a great degree on agriculture, while trade did not surpass the level of local exchanges until this sector became a vital factor in economic development with the appearance of the Italian trading republics in the Byzantine world. In this context we examine sub-topics relating to the methods of production, the transportation of goods, taxation, the circulation of money, the market, etc. Special emphasis is placed on the question to what extent the economic history of a region can be written when statistical data are completely lacking.

#### **HIS 533 The Crusades**

This seminar focuses on various themes concerning the "Holy Wars" between Western Christendom and Islam in Sicily, Spain, and especially the Middle East, from the 11th to the 15th century. Emphasis is placed on the role of the Greeks and relations between Greeks and Latins during the preparation and conducting of the campaigns.

#### HIS 534 Latin Rule in Greek Lands

This seminar investigates various aspects of the history of regions in which Greeks lived under Latin rule during the Middle Ages, namely Sicily and Southern Italy, Syria and Palestine, Cyprus, Frankish Greece, Constantinople, and Crete and other islands. Special attention is devoted to the political, ecclesiastical, and social position and situation of the Greeks.

#### **BMG 535 Byzantine Masculinities and Femininities**

What did it mean to be a man or a woman in Byzantine society? What were the masculine and feminine ideals of the Byzantine world? How did they evolve over time and vary according to social milieu? How are the male and female realms represented in Byzantine literature? These are some of the questions addressed in the context of this seminar through an examination of various texts from different genres and eras.

#### BMG 536 Private and Public Space in Daily Life

Through the examination of a broad spectrum of texts, this seminar approaches various problems in the study of everyday life and the investigation of Byzantine perceptions concerning the complementary but also contradictory meanings of "public" and "private" space. We discuss topics such as diet and culinary practice, oenology, objects of everyday use, the place of baths in society and in economy, sexual activities and practical medicine. Parallel to this, we look into a number of methodological issues, such as the depiction of daily life in literature and the problems that arise for a satisfactory historical and archaeological interpretation of public and private space.

#### ARC 537 "The Social Life of Things" in Byzantium

Artifacts played a significant role in various aspects of the public, religious and private life of the Byzantines, a role that was rarely exclusively utilitarian, since objects often functioned as symbols of social status and wealth, and as vehicles of cultural values. This complex role may be deciphered and become better understood through the combined examination of the available archaeological, artistic and written evidence.

#### **BMG 539 Monastic Organisation**

This seminar investigates the organisation of daily monastic life and its economic and intellectual foundations mainly as reflected in monastic foundation rules, but also in saints' lives and other texts. We examine the rhythm of everyday life (canonical hours, sleep, work, the distribution of tasks) in addition to the management of the material supports of monastic life – mainly immovable property – and the tension between the ideal life devoted to God and the requirements of interaction with the outside world.

#### HIS 540 Latins and Greeks in the First Crusade (1073–1111)

This seminar focuses on the controversial issue of the participation of Greeks and Latins in the planning of and preparation for the First Crusade, as well as the relations between Greeks and Latins (or the emperor and the crusaders) during the campaign and afterwards, with the foundation of the Crusader States in the East.

#### HIS 541 The Latin Empire of Constantinople

This seminar examines the history of Constantinople and Frankish Greece from the conquest of the city by the Latins during the Fourth Crusade in 1204 until its reconquest by Michael VIII Palaiologos in 1261. This is an era of great interest but unfortunately there are very few sources and, therefore, many interpretive problems.

#### BMG 542 The Image of the Other in Byzantine Literature

The image of the Other, who comes into conflict with the Self, is one of the motifs that appears in almost every Byzantine literary genre. The literary construction of the Other constitutes an especially significant characteristic of Byzantine texts and assumes many shapes. The subject of this seminar is the examination of the various appearances of the Other and their importance in the construction of Byzantine mentalities and ideologies.

#### ARC 543 Dress: The Mirror of Byzantine Society

In Byzantium dress was one of the most important means by which individuals and social groups constructed and projected their identity outwards and by which this identity was perceived by others. This seminar investigates how gender, age, family position, religious beliefs, moral values, ethnicity, profession, social status and economic situation are expressed in the choice of clothing and accessories, as well as in the adoption of particular hairstyles and make–up.

#### **BMG 544 Byzantine Outsiders**

Pagans, magicians, gays, whores, and invalids were some of the fringe groups of Byzantine society. In the context of this seminar we examine the portrayal of the world on the edges in Byzantine literature.

#### **ARC 544 Byzantine Diet**

Through the examination of archaeological information (ceramic and metal table vessels, cooking pots, architectural and organic remains, human skeletal remains and animal bones), and with the aid of iconography and textual sources, this seminar explores issues related to byzantine dietary preferences and cooking habits from the 5th to the 15th century. The seminar focuses on the kinds of foodstuffs that the byzantines preferred, their quality, and the ways food was processed, served and consumed within the domestic sphere.

#### ARC 546 The Archaeology of Byzantine Economy

This seminar examines issues related to the economy and commercial enterprises in the Byzantine Empire, focusing not only on the study of archaeological finds, such as coins, amphorae and other items of commercial value, but also on the study of urban economy, the relationship between town and country and the exploitation of agricultural lands.

#### **ARC 547 Byzantine Fortifications**

The aim of this seminar is the exploration of issues related to the Byzantine system of defence through the study of its fortifications and fortification networks. More specifically, this seminar examines the functional and symbolic role of fortifications (defended settlements and cities, towers and castles) with the aid of written sources (about weaponry and fortification networks) and artistic testimonies (representation of sieges, walled cities-fortresses in art, etc.). Greater emphasis is placed on periods of insecurity and transition (e.g., Arab and Slav sieges, Crusader conquests, Seljuk and Ottoman attacks).

#### HIS 548 Social History of the Latin East (11th-13th Centuries)

The aim of the seminar is to examine the institutions that were created as a result of the western (in the context of the crusades) conquest and settlement of areas in the Eastern Mediterranean and the Byzantine world (Kingdom of Jerusalem, Lusignan Kingdom of Cyprus, Latin Empire of Constantinople, Principality of the Morea, and Venetian Crete). The study of the relationship between, the imported feudal political, legal, social, and economic institutions and the preexisting institutions allows us to draw conclusions about the nature of the resulting system (whether it was entirely feudal, colonial, or hybrid) and the extent of the survival of the byzantine institutions. Furthermore, it gives us a better understanding of the cohabitation framework that the Latin settlers set up with the indigenous Greek and other groups in both the religious and the cultural domains as well as of those factors that determined the degree of adaptability and interaction and the creation of new identities.

#### ARC 549 Art and Identity at the Time of the Crusades

The seminar explores the various forms of artistic expression that flourished in the service of the multicultural societies of the Eastern Mediterranean during the period of the Crusades. There will be special emphasis on the study of the fertile meeting between the art of the East and the art of the West that is called Crusader Art.

#### 4. Culture and Ideology (code nos. 550–569)

#### HIS 550 Byzantium and Islam: Conflicts and Exchanges

This seminar examines certain aspects of relations between Byzantine culture and the neighbouring Islamic world, from the emergence of the Arabic caliphate in the seventh century until the final struggle of the Empire with the Ottoman Sultanate. Special emphasis is placed on the ambivalent character of these relations, which on a political-ideological level present harsh conflicts, whereas on a cultural level they are inspired by a true interest in the other side, and, in turn, lead to fruitful mutual influences.

#### HIS 551 Oriens et Occidens

This seminar examines the image of the Other that Western authors formed about the Byzantines in the Middle Ages and vice-versa. The seminar focuses on the question of how this image varies according to the social position of the author, the genre of the text, and the historical period in which it was written.

#### HIS 552 Imperial Ideology

After the Christianization of the Roman Empire the emperor, who used to be considered as a god, became a ruler chosen by God and embodied the idea of oecumenicity and the Living Law. However, the emperor never ceased to flirt with the idea of his divine identity. In this seminar we examine these and other aspects of imperial ideology through ceremonial texts, arengas of imperial documents and laws, literary texts, and Byzantine works of art.

#### **BMG 553 The Rhetor and His Audience**

Rhetoric was an indispensable part of education in antiquity and, in spite of various transformations, it maintained its essential role until the end of Byzantium. The influence of rhetoric on the development of Byzantine literature was broad and deep. Based on rhetorical texts of religious and secular content, we examine the relation of the author with his public, the rhetorical rules and the practices he followed, as well as the level of the language and style employed in connection with his education, his aims, and the public that he was addressing.

#### **BMG 554 Emotions and Mentalities**

This seminar examines the Byzantine emotional and intellectual world and investigates what kind of emotions the Byzantines had, and how they conceived both these emotions and themselves. The variability of apparent constants of human life and problems of interpretation connected to this variability are emphasised.

#### **ARC 555 Personal Piety**

The need for the expression of personal piety constituted one of the most vital motivating forces behind the creation of Byzantine art. The objective of this seminar is the investigation of the ways in which the Byzantines expressed their religiosity and faith through the adoption of certain, socially acceptable, modes of behaviour and the commission and usage of works of art.

#### BMG 556 Representations of the Body

The meaning of the human body changes across cultures and periods. Different societies and cultures understand and treat the body in dissimilar ways. The relation that Byzantines had with their bodies and the meanings they attributed to them are subjects that have not been studied at all. In the framework of this seminar, the meanings that the body had in Byzantium and its representations in art and literature are examined.

#### **BMG 557 Representations of Death**

This seminar looks at the ways of representing death in Byzantine literature and at the various ideological parameters of such representation in different periods of Byzantine history. In connection with the religious beliefs of the Byzantines, theology, liturgical practice, but also the depiction of death in Byzantine art, a series of texts from a broad spectrum of genres are read, for example, works of funerary literature (funeral orations, tombstone epigrams, laments), hymnographic works, historiographical and hagiographical texts, testaments, novelistic and epic-like narratives.

#### **ARC 558 From Paganism to Christianity**

This seminar aims to explore the gradual "transition" from the ancient world and paganism to Byzantium and Christianity through the study of archaeological remains and works of art. Emphasis is placed on the identification of this procedure through the symbolism of early Christian art and architecture: the transformation of ancient temples to Christian churches, the building of new basilicas, sculpture and monumental art, the transformation of Late Antique urban space, items facilitating Christian worship and burial practices.

#### ARC 559 The Archaeology of Death in Byzantium

Peoples' reactions to the idea of death and the afterlife, the preparation of the dead and burial practices are aspects that belong to the sphere of byzantine ideology. This seminar examines issues related to death and burial in the byzantine world (5th-15th c.), on the basis of archaeological remains and the visual arts, and with the aid of written sources. More specifically, the seminar examines the typological development of cemeteries and graves, the decoration of grave monuments and its meaning, items accompanying graves and their symbolism, as well as the evaluation of conclusions regarding byzantine living standards and conditions through the study of skeletal remains.

#### ARC 560 Byzantine Material Culture and Identity

This seminar aims to study the various "identities" of the byzantine people, as these are expressed in the material remains of the period. Emphasis is placed on the "identification" of identity in aspects of the material culture (e.g., the built environment, the byzantine house, the costume, items of domestic comfort), in other words, the expression of religious, political, cultural, social, "ethnic" or other identity. Moreover, the seminar examines the role of the byzantine civilisation in the formation of socio-political and/or cultural ideology of contemporary states, such as Greece, Cyprus and Turkey.

#### BMG 561 The Image of Women in Byzantine Literature

Byzantine literature could be described as androcentric, since it was written by men and is mainly about men. As a result, the women depicted in Byzantine literature constitute literary constructions of male fantasy, which is often misogynistic. In this seminar, the literary constructions of various women in texts belonging to many genres and different centuries are approached.

#### ARC 562 Portraits of Women in Byzantine Art

From the Virgin Mary to Eve, from holy women to female sinners in the composition of the Last Judgment, from empresses to simple women working in the fields, Byzantine art offers a wide spectrum of female portrayals. Their examination reveals Byzantine attitudes and views concerning the position and the role of women in Byzantine society.

#### BMG 563 The Ruler in Byzantine Literature

The figure of the emperor plays a rather important role in Byzantium's political ideology. Yet, in most cases, this figure is presented through literary representations that idealise or denigrate the ruler. This seminar examines the literary mechanisms and the ideological framework of this construction of the ideal ruler through rhetorical, historiographical, and legal texts, but also through works of "political theory" (e.g., the Imperial Statue of Nikephoros Blemmydes or the De administrando Imperio of Constantine Porphyrogennetos).

#### ARC 564 The Art of Propaganda and Diplomacy

It is often claimed that the survival of the Byzantine Empire for over a millennium is due, to a large extent, to the efficiency of Byzantine diplomacy. This seminar explores the use of art by the State and the Church as a powerful means of selfpromotion and as an effective vehicle for the dissemination of political and religious messages both within the borders of the Empire and abroad.

#### **BMG 565 Education in Byzantium**

Intellectual flourishing in Byzantium depended on the learning of certain scholars and on the organisation of education. In order to evaluate Byzantine culture, it is necessary to understand its literary tradition and therefore to study the role of education. This seminar focuses on the coexistence of the Ancient Greek tradition and Christian doctrine in education as well as on the institutions of education in various periods of Byzantine history.

#### HIS 566 Contra Errores Graecorum

The Latin image of the theological "errors" of the Greeks from Charlemagne to the Fall of Constantinople has not been fully investigated. This seminar examines various texts that were written Contra errores Graecorum, for example, in the context of the coronation of Charlemagne (800), the Photian Schism (860), the mutual excommunications of 1054, the Crusades, and the Councils of Lyons II (1274) and Florence (1438–39).

#### **BMG 567 Conquests of Cities**

This seminar focuses on the subject of the conquest of Byzantine cities as presented in various literary genres. Characteristic examples are studied, beginning with historical accounts of the events and continuing with texts of rhetoric or poetry (monodies, Threnoi, etc.). Special emphasis is placed on works concerning the captures of Thessaloniki and Constantinople.

#### HIS 568 Historiography in the Latin-Ruled Greek World: Historicity and Ideology

The seminar makes a comparative study of a variety of historical texts (chronicles, annals, narratives in prose, narrative poems, manuscript historical notes, memoranda and relazioni) from the Latin-ruled Greek world (Cyprus, Morea, Ionian Sea, Crete, the Agean) during the byzantine and post-byzantine period. Various aspects of the process of history writing will be investigated, such as historiographical genres, language and style, historicity and reliability of the texts, and the projected ideology in connection with each text's socio-political context and authorial subjectivity. A comparison with texts of the byzantine and western historiographical traditions as well as with texts from the Latin East will allow us to trace relationships and influences and will reveal those factors that favoured a historiographical production on Cyprus that surpasses significantly that in other areas in volume, span of time and varietv.

#### 5. Byzantine and Frankish Cyprus (code nos. 570–585)

#### HIS 570 Byzantine Cyprus

Using the example of Byzantine Cyprus, this seminar examines the various difficulties that the investigation and interpretation of the periphery and the border areas of Byzantium present, since the centralisation tendencies of the capital clashed with local traditions and particularities, as well as with the spheres of influence of neighbouring political powers.

#### HIS 571 Frankish Cyprus

This seminar studies topics in Cypriot history during Frankish and Venetian rule, 1191–1571, such as the conquest, feudalism, the civil wars of 1228–1233 and 1456–1460, the coup d'états of 1306–1310 and 1369, the Genoese invasion, the war with the Mamlukes, the transfer of authority to the Venetians, language and nationality, law, administration, foreign relations, education, agriculture, slavery, and trade.

#### HIS 572 The Ecclesiastical History of Cyprus

This seminar examines various topics of the Church history of Cyprus from the First Ecumenical Synod of Nicaea in 325 until the Turkish Conquest of 1571. These include the period of Epiphanios, the Autocephaly, Iconoclasm, and the subjugation of the Greek clergy to the Roman pope in the Frankish period.

#### ARC 573 Relations between Centre and Periphery: Byzantine Art in Cyprus

Within the broader context of the dynamics between the centre and the periphery, various manifestations of artistic expression in Cyprus are discussed with the purpose of highlighting its distinguishing features. Special emphasis is placed on tracing the mechanisms of transmission and assimilation of the general trends emanating from the major artistic centres of the Empire through the Cypriot artistic idiom.

#### ARC 574 Cyprus and the Eastern Mediterranean: Byzantine Landscape Archaeology

This seminar examines the evolution of the built space and the long-term history of the rural landscape during the byzantine period and the era of Latin/Frankish domination in the Eastern Mediterranean (4th-16th c.). Emphasis is placed on the exploration of the diachronic relationship between geography and settlement, the relations between city and the rural countryside, the role of the "village" (as an autonomous settlement and economic unit), and the interpretation of settlement patterns and location.

#### ARC 575 Early Byzantine Cyprus: Art and Archaeology

The Early Byzantine period (4th-7th c.), also known as the period of Late Antiquity, was an era of growth and prosperity for Cyprus as attested by a wealth of archaeological remains. Through the examination of these remains, students will have the opportunity to explore issues relating, among others, to life in Cypriot cities and the countryside, commerce and economy, artisanal production, such as pottery and metalwork, and, not least, the expansion of Christianity and its impact on various aspects of daily life and artistic production on the island.

#### **BMG 575 Epiphanios of Salamis**

This seminar focuses on Epiphanios of Judaea, founder and abbot of a monastery for thirty years and bishop of Salamis (Constantia) from 367. On the basis of his writings, we examine his theological opinions and his activities as bishop, as well as the ecclesiastical history of his period. He represents a combination of an uncompromising zealot, a devoted defender of Christian doctrine, an intolerant opponent of paganism and the veneration of idols, and a rigid adversary of the teachings of Origen.

#### HIS 576 Byzantine Cyprus in the Dark Ages (600–965)

The first Arab raids in Cyprus (649, 653), together with the ensuing developments, created a particular regime on the island that is usually characterised as the "Byzantine-Arab Condominium". This period, which lasted approximately 300 years until the reconquest of Cyprus by Nicephoros II Phocas (965), gives us the opportunity to examine a section of the Byzantine-Arabic border region from two different vantage points, the Byzantine and the Arabic, in the light of wider political and social developments in the Eastern Mediterranean basin.

#### **BMG 577 Cypriot Hagiographical Texts**

We possess a relatively large number of hagiographical texts composed in Cyprus, many of which are devoted to Cypriot saints. In the context of this seminar, we discuss Cypriot hagiographical texts from a literary perspective, as well as the social conditions of their production.

#### **BMG 578 Neophytos the Recluse**

The goal of this seminar is a comprehensive examination of the personality and the öeuvre of Neophytos the Recluse in the historical, political, and social environment of Byzantine Cyprus

from the mid–12th century until the beginning of the 13th. Special emphasis is placed on education in the periphery, manuscripts, libraries, monastic life and art, and the spiritual and literary contribution of Neophytos.

#### HIS 579 Greeks and the Byzantine Tradition in Frankish Cyprus

While the establishment of the Frankish Kingdom of Cyprus certainly put an end to the political sovereignty of Byzantium, it did not sever the spiritual and cultural bonds of the Greek-speaking population with the Byzantine world. This seminar investigates the institutions, mentalities, and traditions of the Byzantine past that, beneath the surface of the feudal system, continued to exist and to influence the historical development of the island.

#### HIS 580 The Ecclesiastical History of Cyprus 1191–1374

This seminar concentrates on the analysis of the Church history of the island from the Frankish conquest until the Genoese invasion, the consequences of the conquest for the Greek clergy, the establishment and the internal history of the Latin ecclesiastical hierarchy, monasticism, the relations between the Latin and Greek clergies, and noteworthy events, such as the martyrdom of the thirteen monks of Kantara.

#### HIS 581 Historiography of Cyprus

This seminar examines the most significant chronicles relating to the Frankish period in Cyprus and focuses on the first two phases of Cypriot historiography: from 1425 to 1571 (Makhairas, Amadi, Florio Boustron, George Boustronios) and from 1571 to 1788 (Etienne Lusignan, Loredano, Archimandrite Kyprianos). The aim of the seminar is to establish the genealogical "stemma" of the chronicles as well as the methodology and originality of each chronicler.

#### BMG 582 Cypriot Scholars of the 13th and 14th Centuries

This seminar investigates the öeuvre of Cypriot men of letters, such as George of Cyprus and George Lapithes in the broader literary and cultural context of their times. Importance is placed on the question if and how the relationship between the cultural centre and the periphery is reflected in the works of specific authors.

#### HIS 583 Women in Latin-Ruled Cyprus (13th-16th Centuries)

The seminar offers a general survey of the role of women in Cypriot society during the Frankish and Venetian domination; in this way women's social contribution emerges from its anonymity in both the sources and modern literature. The investigation of the position of medieval Cypriot women will examine how women's gender affected the ensuing religious and social prejudices, the politico-historical context, the institutional and legal (customary, secular, and ecclesiastical) framework, and will look at women's contribution to political life and the economic production (in rural and urban areas). From the scattered information provided by the sources, we will attempt to illustrate the full range of these women's social presence: family life and relations between the sexes, power and politics, economy and monasticism, artistic production and entertainment.
#### ARC 584 Art in Medieval Cyprus during the Period of Latin Rule

This seminar explores both the products and the conditions for artistic creativity in Cyprus during the period of Latin rule. Within this framework students will have the opportunity to study representative works--mainly secular and ecclesiastical painting and architecture--within their historical, religious, social, and cultural context. There will be a particular emphasis on the exploration of the dynamic interaction between the deeply rooted byzantine artistic tradition of Cyprus and imported artistic traditions from the West and the Crusader Levant.

## DOCTOR OF PHILOSOPHY (Ph.D.) IN BYZANTINE STUDIES

#### **Admission Requirements**

The admission requirements for the Ph.D. programme are the same as those for the Master programme (see relevant paragraph above). For the Ph.D. programme, a postgraduate degree (M.A., Mastère, etc.) in Byzantine Studies or other related fields is required.

The timeframe for the successful completion of the Ph.D. programme cannot exceed eight (8) academic years after admission.

## **Academic Requirements**

- 1. Comprehensive examination. By the fifth semester at the latest, the Ph.D. candidate is required to pass a comprehensive oral examination before a threemember committee. It comprises three subjects selected by the candidate from a list of topics representative of all the academic fields of the postgraduate programme.
- Approval of detailed thesis proposal. Following the comprehensive examination, within a period of four semesters maximum, the Ph.D. candidate submits a detailed thesis proposal, which is evaluated by a three– member committee.
- 3. Attendance at and active participation in the "Workshop of the Byzantine Studies" (see above, 4c-4d).
- 4. Submission and defence of the Ph.D. dissertation.

For more information on the academic requirements, see the Admission and Attendance Regulations – Application Requirements on page 16 or, consult the Graduate School (tel. 22894021/44) or the Department's Secretariat.

## **Contact Details**

#### **Coordinators of the Programme in Byzantine Studies**

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http://www.ucy.ac.cy/bmg http://www.ucy.ac.cy/hisarch









## **APPENDICES**

Calendar of Academic Year (292)

Organisation Chart (293)

Governing Bodies (294)

Maps (296)

Telephone and Fax Directory (300)

	FALL SEMESTER 2012-2013	SPRING SEMESTER 2012-2013	
REGISTRATION	27-31 August	14-18 January	
CLASSES BEGIN	3 September	21 January	
DEADLINE FOR COURSE CHANGES	14 September	1 February	
DEADLINE FOR DROPPING A COURSE	21 September	8 February	
DEADLINE FOR COURSE WITHDRAWAL	19 October	8 March	
CLASSES END	30 November	19 April	
STUDY PERIOD	3-7 December	29 April - 12 May	
EXAMINATIONS	8-23 December	22-28 April	
VACATION PERIOD	24 December - 13 January	13-26 May	
PUBLIC HOLIDAYS		18 March (Green Monday)	
	6 January	25 March	
	1 October	1 April	
	28 October	1 May 5 May (Easter)	



### COUNCIL

#### **EXTERNAL MEMBERS**

4 MEMBERS APPOINTED BY THE COUNCIL OF MINISTERS 3 MEMBERS APPOINTED BY THE SENATE

#### UNIVERSITY MEMBERS

RECTOR (ex-officio) VICE-RECTORS (ex-officio) 2 REPRESENTATIVES OF ACADEMIC STAFF 1 REPRESENTATIVE OF ADMINISTRATIVE STAFF 1 STUDENT REPRESENTATIVE DIRECTOR OF ADMINISTRATION AND FINANCE (ex-officio – non-voting member)

#### SENATE

RECTOR VICE-RECTORS

DEANS 3 ACADEMIC REPRESENTATIVES FROM EACH FACULTY STUDENT REPRESENTATIVES (number equal to the number of Faculties) DIRECTOR OF ADMINISTRATION AND FINANCE (ex-officio – non-voting member) DIRECTOR OF LIBRARY (ex-officio – non-voting member)

#### **RECTORATE COUNC**

RECTOR VICE-RECTORS DIRECTOR OF ADMINISTRATION AND FINANCE

#### FACULTY BOARD

DEAN DEPUTY DEAN CHAIRPERSONS OF THE FACULTY'S DEPARTMENTS 2 ACADEMIC MEMBERS FROM EACH FACULTY'S DEPARTMENTS STUDENT REPRESENTATIVES (number equal to the number of departments)

#### DEPARTMENTAL BOARD

PROFESSORS OF THE DEPARTMENT ASSOCIATE PROFESSORS OF THE DEPARTMENT ASSISTANT PROFESSORS OF THE DEPARTMENT LECTURERS OF THE DEPARTMENT STUDENT REPRESENTATIVES (number equal to 1/3 of the total of academic staff)

#### APPOINTMENT/ELECTION OF THE MEMBERS OF THE GOVERNING BODIES

#### Chairperson / Vice-Chairperson of the University Council

Appointed by the President of the Republic from among the external members. In cases where the Chairperson is one of the members appointed by the Council of Ministers, the Vice Chairperson will be one of the members appointed by the Senate and vice-versa.

#### **Rector / Vice-Rectors**

Elected by the entire academic staff, student and administrative staff representatives.

**Deans / Deputy-Deans** Elected by the members of the Faculty's Departmental Boards.

Chairperson / Vice-Chairperson of Departments

Elected by the Departmental Board.

Academic Staff Representatives on the Council Elected by the Academic Staff.

Academic Staff Representatives (by Faculty) on the Senate Elected by the Faculty Board.

Academic Staff Representatives (by Department) on the Faculty Board Elected by the Departmental Board.

#### COUNCIL

Charis Charalambous, Chairperson				
Anastasios Leventis, Vice-Chairperson				
Constantinos Christofides, Rector				
Athanasios Gagatsis, Vice-Rector for Academic Affairs				
Marios Mavronicolas, Vice-Rector for International Affairs, Finance and Administration				
Stelios Koiliaris, Member				
Paula Kyprianidou, Member				
Panikkos Giallouros, Member				
Symeon Matsis, Member				
Michalis Sarris, Member				
Charalambos Charalambous, Member				
Panayiotis Agapitos, Member				
President of Students Union, Member				
Charalambos Kitsios, Representative of administrative staff, Member				
Andreas Christofides, Director of Administration and Finance, Secretary, non-voting Member				

### ADMINISTRATIVE SERVICES

DIRECTOR OF ADMINISTRATION AND FINANCE: Andreas Christofides ACADEMIC AFFAIRS AND STUDENT WELFARE: Philippos Pattouras, Head FINANCIAL: Androulla Theophanous, Head HUMAN RESOURCES: Glafkos Christou, Head INFORMATION SYSTEMS: Agathoclis Stylianou, Head LIBRARY: Philippos Tsimpoglou, Head RESEARCH AND INTERNATIONAL RELATIONS: Gregory Makrides, Head TECHNICAL: Agis Elisseos, Head

#### SENATE

Constantinos Christofides, Rector, Chairman Athanasios Gagatsis, Vice-Rector for Academic Affairs Marios Mavronicolas, Vice-Rector for International Affairs, Finance and Administration Haridimos Tsoukas, Dean of the Faculty of Economics and Management Panos Papanastasiou, Dean of the Faculty of Engineering Andreas Papapavlou, Dean of the Faculty of Humanities Georgios Kazamias, Dean of the Faculty of Letters Eftstathios Paparoditis, Dean of the Faculty of Pure and Applied Sciences Stelios N. Georgiou, Dean of the Faculty of Social Sciences and Education Sofronis Clerides, Faculty of Economics and Management Theofanis Mamuneas, Faculty of Economics and Management Nikos Vafeas, Faculty of Economics and Management Andreas Alexandrou, Faculty of Engineering Marios C. Phocas, Faculty of Engineering Christoforos N. Hadjicostis, Faculty of Engineering Yiannis Ioannou, Faculty of Humanities Kleanthes Grohmann, Faculty of Humanities Thomas Sinclair, Faculty of Humanities Georghios Georghis, Faculty of Letters Georgios Xenis, Faculty of Letters Julia Chatzipanagioti-Sangmeister, Faculty of Letters Alekos Vidras, Faculty of Pure and Applied Sciences Constantinos Deltas, Faculty of Pure and Applied Sciences Haralambos G. Panagopoulos, Faculty of Pure and Applied Sciences Kyriakos Demetriou, Faculty of Social Studies and Education Mary Ioannidou-Koutselini, Faculty of Social Studies and Education Fofi Constantinidou, Faculty of Social Studies and Education Elena Anastasiou, Student Representative Marios Elia, Student Representative Savvas Lambrou, Student Representative Christos Makris, Student Representative Silouanos Nicolaou, Student Representative Chrisovalantis Periandrou, Student Representative Andreas Christofides, Director of Administration and Finance, Secretary, non-voting member Philippos Tsimpoglou, Director of Library, non-voting member

# 296 University Buildings



	1 AXIOTHEAS STREET (Axiotheas Mansion)	13	91 AGLANTZIAS AVE (Green Park)
	Cultural Centre		Office of the Dean of the Faculty of Engineering (FE)
			Department of Electrical and Computer Engineering (ECE-EE)
	2 12 GLADSTONOS STREET		Department of Mechanical and Manufacturing Engineering (MME-EE)
	Archaeological Research Unit (Faculty of Letter)		Department of Mechanical and Manufacturing Engineering (MME-L)
			Department of Civil and Environmental Engineering (CEE-FE)
	3 TO KALLIPOLEUS AVE (Apostolides)		Diogenes Business Incubator
	Department of Byzantine and Modern Greek Studies (FL)	14	93 AGLANTZIAS AVE 93 (La Residence)
	Department of Classics and Philosophy (FL)		Department of Mechanical and Manufacturing Engineering (EE)
			Department of Mechanical and Manufacturing Engineering (FE)
	4 29 KALLIPOLEOS AVE (lakovio Building)	15	132 KERYNEIA AVE
	Department of Law (FSSE)		KIOS Research Centre for Intelligent Systems and Networks
	Department of Education (FSSE)		NOS Research centre for intelligent systems and networks
	Translation Centre	16	2 LEMESOS AVE (Aluminium Tower)
	Language Centre		Pre-Service Training Programme
			IWI Intrenational Water Institute
	5 36 KALLIPOLEOS AVE (Amaral 27)		Windenatonal water institute
	Department of Electrical and Computer Engineering (FE)	17	79 LARNAKAS AVE (College of Tourism)
		_	Lecture Rooms
	6 48 KALLIPOLEOS AVE (Loucas Court)		
	Department of Electrical and Computer Engineering (FE)	18	146 LARNAKAS AVE (Pitsiakos M)
	Department of Mechanical and Manufacturing Engineering (FE)		Student Clubs
		_	Information Systems Services Storage
	7 59 KALLIPOLEOS AVE (Fragkopoulos)		
	Department of Education (FSSE)	19	167 LARNAKAS AVE (Pitsiakos A)
	Department of Turkish and Middle Eastern Studies (FH)		Library
	8 65 KALLIPOLEOS AVE (Antoniou)	20	UNIVERSITY CAMPUS
	Office of the Dean of the Faculty of Social Sciences		Anastasios G. Leventis University House
	and Education (FSSE)		Social Facilities
	Department of Education (FSSE)		Faculty of Pure and Applied Sciences (FPAS)
	Department of Psychology (FSSE)		- Office of the Dean of the FPAS
	······································	_	- Department of Riological Sciences
	9 75 KALLIPOLEOS AVE (Central Building)	_	Department of Methometics 0. Statistics
	Department of History and Archaeology (FL)		- Department or Mathematics & Statistics
			- Department of Computer Science
	10 75 KALLIPOLEOS AVE (Central Teaching Facilities)		- Department of Physics
	Office of the Dean of the Faculty of Letter (FL)		- Department of Chemistry
	Office of the Dean of the Faculty of Humanities (FH)		Common Teaching Facilities 01
	Department of English Studies (FH)		Eaculty of Economics and Management (EEM)
	Department of Education (ESSE)		Office of the Deep of the FEM
	Department of History and Archaeology (EL)		- Office of the Deart of the FEM
	Department of history and Archaeology (FL)		- Department of Economics
	Library		<ul> <li>Department of Public and Business Administration</li> </ul>
	Information Systems Services		- Economic Research Centre
	Lecture Rooms		- Centre for Banking and Financial Research Unit
	FEPAN (Student Union)		Common Teaching Facilities 02
	School of Modern Greek		Sports Hall
			Sports Fields
	11 11-13 DRAMAS STREET (Theophanides)		Sports rields
	Department of Education (FSSE)		
			Stores Building
	12 12 AGLANTZIAS AVE (Athena)		Campus Supplementary Offices (CSO)
	Department of French Studies and Modern Languages (FH)		Oceanography Centre
	Department of Social and Political Sciences (FSSE)		Centre of Continuing Education and Assessment (K.EP.E.A.A.)
	Centre of Teaching and Learning (KE.DI.MA)		Site Offices
	Radio Station		
		21	LATSIA ANNEX
			Lecture Rooms
			Department of Mechanical and Manufacturing Engineering (FE)
19			Department of Electrical and Computer Engineering (EE)
	j l		Department of Electrical and computer Engineering (i E)
18		22	10 HALCOKONDILI STREET (Amaral 7)
			Turcological Library
	17.		· ····································
		23	23A ARIADNIS & 68 LEDRAS STREET (Ledras)
	INTRACE INTRACE		Department of Architecture (FE)
ENTRANCE			
		24	56 VITHLEEM & 1 VITONOS STREET (Aslanidou)
			Department of Civil and Environmental Engineering (FE)
			Library
AN X			,
NA C		25	BOUBOULINAS STREET (Pelegkari)
7 7			Information Systems Services
1	CAMPUO		Art Student Club
3	CAIVIPUS		
mo	20 0	26	19 LEDAS SI KEET (LECIA)
1 13			Department of Education (FSSE)
VI		27	
to of		27	
			Department of Biological Sciences (FPAS)
			(The Cyprus Institute of Neurology and Genetics)
	PROFOSED ROAD NETWORK	28	25-27 PROPYLAION STREET
-	EKSING CAMPLE PALAUTIES -100 0 20 100 5000	20	Department of Education (ESSE)
			Department of Education (F33E)

# 298 Access to the New Campus



- 01. University House "Anastasios G. Leventis"
- 02. Common Teaching Facilities (CTF 01)
- 03. Faculty of Sciences (FST 01)
- 04. Faculty of Sciences (FST 02)
- 05. Indoor Sports Hall (SPF 01)
- 06. Services Buildings (SBD)
- 07. Energy Centre (ENC)
- 08. Photovoltaic Park

- 09. Campus Supplementary Offices (CSO)
- 10. Residential A (SRA)
- 11. Parking Area (PRK 02)
- 12. Parking Area (PRK 03)
- 13. Parking Area (PRK 05)
- 14. Parking Area (PRK 07)
- 15. Social Facilities Centre
- 16. Faculty of Economics and Management



- 1. Department of History and Archaeology
- 2. Restaurant
- 3. Dean of the Faculty of Letters / School of Modern Greek
- 4. Lecture Rooms
- 5. Assembly Hall
- 6. Library
- 7. Engineering Labs
- 8. Information Systems Service

- 9. Dean FH / Department of English Studies
- 10. Gymnastics room
- 11. Wing E (Library / Lecture Rooms)
- 12. Chapel
- 13. Wing B (EDU Labs)
- 14. Dean FSSE / Department of Psychology
- 15. Department of Turkish and Middle Eastern Studies

## UNIVERSITY OF CYPRUS

University House "Anastasios G. Leventis" • P.O. Box 20537, 1678 Nicosia, Cyprus Tel.: (+357) 22894000 • E-mail: info@ucy.ac.cy • http://www.ucy.ac.cy

	TEL.	FAX
University Council Chairperson	22894011	22894470
Rector's Office	22894008	22894469
Vice-Rector's Office (Academic Affairs)	22894003	22894468
Vice-Rector's Office (International Relations,		
Finance and Administration)	22894005/6	22894467
Director of Administration and Finance	22894013	22894470
FACULTIES		
FACULITES		
Economics and Management	22893610	22892481
Engineering	22892233	22892254
Humanities	22894423	22892033
Letters	22892008	22892009
Pure and Applied Sciences	22892786	22892810
Social Sciences and Education	22892060	22892061
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	HER SERVICE	<b>)</b>
Academic Affairs and Student Welfare	22894021	22894463
Financial Services	22894106	22894465
Human Resources	22894177	22894480
Information Systems Services	22892130	22894434
Library	22892036/2042	22894557
Research and International Relations	22894288	22894472
Technical Services	22894200	22894464
Centre of Continuing Education, Assessment		
and Development	22894151	22892550
Centre of Teaching and Learning	22894546	22894548
Cultural Centre (Axiotheas Mansion)	22894531	22895053
Legal Counsellor of the University	22894145/4156	22894480
School of Modern Greek	22892028	22892029
University of Cyprus Radio Station	22895140	22895064
Canteen (University House A.G. Leventis)	22894425	
Canteen / Restaurant (Central Campus)	22892006	
Health Centre (Central Campus)	22892024	
Security (Central Campus)	22892011	
Security (New Campus)	22894055	

ACADEMIC DEPARTMENTS / RESEARCH UNITS				
	TEL.	FAX		
Archaeological Research Unit	22893560	22674101		
Architecture	22892960/80	22660834		
Biological Sciences	22892880/94	22892881		
Byzantine and Modern Greek Studies	22892360/81	22894490		
Centre for Banking and Financial Research	22892496	22892421		
Chemistry	22892780/2800	22892801		
Civil and Environmental Engineering	22892200/49	22892295		
Classics and Philosophy	22893850	22894491		
Computer Science	22892700	22892701		
Economics	22893700/01/02	22895028		
Economics Research Centre	22893660	22895027		
Education	22892940	22894488		
Electrical and Computer Engineering	22892240	22895079		
English Studies	22892102	22750310		
French Studies and Modern Languages	22894370	22894387		
History and Archaeology	22892180	22895078		
Language Centre	22892901	22894439		
Law	22892920	22894438		
Mathematics and Statistics	22892600/3921	22892601		
Mechanical and Manufacturing Engineering	22892280/2250	22892254		
Nanotechnology Research Center	22892280	22892254		
Physics	22892820	22892821		
Psychology	22892070/86	22895075		
Public and Business Administration	228923605/50	22892460		
Research Center for Intelligent Systems				
and Networks (KIOS)	22893450	22893455		
Social and Political Sciences	22894561	22894559		
Turkish and Middle Eastern Studies	22893950	22895040		
STODENT ON				
Student Union Office	22894026	22894485		