

# DEPARTMENT OF ECONOMICS

UNIVERSITY OF PATRAS MSc in Applied Economics & Data Analysis





# POSTGRADUATE PROGRAM





# Preface

Welcome to the Department of Economics of the University of Patras.

This guide aims to present information related to the postgraduate curriculum "Applied Economics & Data Analysis" offered by the Department of Economics of the University of Patras in Greece. The intended audience are Greek and European students interested in the postgraduate degrees offered by the Department of Economics. This provides information about the University of Patras, the Department of Economics and the offered postgraduate degree program.

More information related to the University of Patras, the Department of Economics as well as the postgraduate degrees offered is available at www.upatras.gr ,www.econ.upatras.gr, http://postgrad.econ.upatras.gr/el respectively.

Ioannis Venetis, Associate Professor Head of Department of Economics

July 2023

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# The University of Patras

### **GENERAL INFORMATION**

The University of Patras was founded in 1964 as a self-governing institution under the supervision of the Ministry of Education. It started to function in the academic year 1966-67. Today, it is the third largest university in Greece. It enjoys recognition as an academic institution with a worldwide impact, attracting thousands of students and a large number of academics who are actively involved in the cutting edge of science, innovation and excellence.

The University is organised into seven Schools, containing departments of related academic fields:

• The *School of Agricultural Sciences* consists of the Department of Animal Production, Fisheries & Aquaculture (based in Messolonghi), the Department of Biosystems & Agricultural Engineering (based in Messolonghi), the Department of Crop Science (based in Messolonghi), the Department of Food Science & Technology (based in Agrinio), the Department of Agricultural Biotechnology (based in Agrinio), and the Department of Agriculture (based in Amaliada)

• The School of Economics & Business consists of Department of Business Administration (based in Patras), the Department of Business Administration of Food & Agricultural Enterprises (based in Agrinio), the Department of Economics (based in Patras), the Department of Management Science & Technology (based in Patras), and the Department of Tourism Management (based in Patras)

• The *School of Engineering* consists of the Department of Architecture (based in Patra), the Department of Chemical Engineering (based in Patras), the Department of Civil

Engineering (based in Patras), the Department of Computer Engineering & Informatics (based in Patras), the Department of Electrical & Computer Engineering (based in Patras), the Department of Environmental Engineering (based in Agrinio), and the Department of Mechanical Engineering & Aeronautics (based in Patras)

• The *School of Health Rehabilitation Sciences* consists of the Department of Nursing, (based in Patras), the Department of Physiotherapy (based in Aigio), and the Department of Speech & Language Therapy (based in Patras)

• The *School of Health Sciences* consists of the Faculty of Medicine (based in Patras), and the Department of Pharmacy (based in Patras)

• The School of Humanities & Social Sciences consists of the Department of Educational Science & Early Childhood Education (based in Patras), the Department of Education & Social Work (based in Patras), the Department of History & Archaeology (based in Agrinio), the Department of Museum Studies (based in Pyrgos), the Department of Philology (based in Patras), the Department of Philosophy (based in Patras), and the Department Theatre Studies (based in Patras). • The *School of Natural Sciences* consists of the Department of Biology, the Department of Chemistry, the Department of Geology, the Department of Material Science, the Department of Mathematics and the Department of Physics, all based in Patras.

The University of Patras has acquired international prominence for pioneering wide-ranging research in several areas, such as Health, Biotechnology, Mechanics, Electronics, Informatics, Environment, Basic Science, and Social Sciences. A number of its departments have been designated as Centres of Excellence, on the basis of international assessment. The University publishes a monthly newsletter, which provides information about the major research activities of its academic staff as well other academic events.

The main campus is situated in Rio, just 10 km outside the city of Patras and about 200 km west of Athens. The University has a large number of separate buildings, along with a Central Library, a Museum of Science & Technology, a Botanical Garden, and a Student Centre. On the main campus, one can also find the Students' Residence Hall, a Conference & Cultural Centre, a Restaurant, a Bank, a Bookstore, cafeterias & kiosks, and the University Hospital which functions both as the major regional medical center and as a teaching facility for the Faculty of Medicine. Several other facilities are available on campus, including a gymnasium, a post-office, a swimming pool, a nursery school, and a primary & secondary school for the children of the academic & administrative personnel.

Together with the University's educational and research work, the rich campus life attracts many students every year as their first choice for their degree studies. Currently, the University of Patras has a total of 30,185 undergraduate and 3,755 postgraduate students, 180 Laboratories, 17 Clinics, 693 Faculty Members, 232 Scientific Staff Members, and 438 Administration Staff Members.

Since its early days, the major aim of the University of Patras has been the effective interaction with the European and international environment. International policy is achieved through cooperation with universities and research institutions worldwide. Cooperation includes activities related to research and teaching, bilateral student/staff exchange agreements, and participation in international organizations, networks and associations. The University actively participates in the ERASMUS+ Programs (LLP Erasmus Studies and LLP Erasmus Placement).

Patras, capital of the prefecture of Achaia, is known for its past and present. The region's history stretches back to long before the time of the Trojan wars, and the town is named, according to tradition, after Patreas, one of the leaders of the Achaeans. The patron saint of Patras, to whom the University is dedicated, is St.Andrew, the first chosen of the Apostles, who martyred here. Between the lofty Mt.Panachaiko and the waters of the Mediterranean, the city of Patras lies under its 15th century Venetian castle. With a population of 200,000 inhabitants, Patras is also a major commercial and industrial centre, "the gateway to the west" for Greece, and a significant entry point for tourists. The city's recently founded "Science Park" provides a very good infrastructure for further future industrial & commercial development.

The city of Patras offers a wide variety of cultural opportunities. Many musical & theatrical events and festivals are taking place throughout the year, culminating in the International Summer Festival, which plays an important role in the city's cultural life. The city is also famous for its annual carnival, one of the best known in Europe, which occurs in the pre-Lent period in February or March.



Along Patras' attractive coastline, there are many picturesque seaside villages, which one can visit on a day trip. Ancient Olympia and Delphi are one of the major and well-known destinations. There are also several near-by islands to visit, such as Zakynthos, Kefalonia and Ithaka.



### **UNIVERSITY ACADEMIC CALENDAR 2022-2023**

#### The academic calendar for 2022-2023 is as follows:

FALL SEMESTER	SPRING SEMESTER			
Teaching Period: 3/10/2022 -13/1/2023	Teaching Period: 20/2/2023 - 2/6/2023			
Examination Period: 23/1/2023 - 10/2/2023	Examination Period: 12/6/2023 - 30/6/2023			
September 2023 Examination Period: 26/08/2023 - 23/09/2023				



# Department of Economics

### **GENERAL INFORMATION**

The Department of Economics of the University of Patras was established by the Presidential Decree 325/23-5-1985, which designated Agrinio (Prefecture of Etoloakarnania) as its location. In 1997-1998, the Department of Economics was transferred to the main campus in Rio by the Presidential Decree 85/21-4-1998.

The Department of Economics belongs to the School of Economics & Business of the University of Patras. From October 2013 until May 2019, the School, in addition to the Department of Economics, included the Department of Business Administration (founded in 1999, based in Patras), the Department of Cultural Heritage Management & New Technologies (established in 2004, based in Agrinio), and the Department of Business Administration of Food & Agricultural Enterprises (founded in 2006, based in Agrinio). Since June 2019, the School of Economics & Business consists of 5 Departments: the Department of Economics, the Department of Business Administration of Food & Agricultural Enterprises, the Department of Business Administration of Food & Agricultural Enterprises, the Department of Tourism Management (founded in 2019, based in Patras), and the Department of Management Science and Technology (founded in 2019, based in Patras).



Dean of the School for the academic year 2022-2023 is Professor Voutsinas Vassilis, of the Department of Business Administration. Head of the Department of Economics for the academic year 2022-2023 is the Associate Professor Venetis Ioannis.

The Department of Economics currently has a total of 2,000 students. The curriculum covers a full range of economics subjects at the undergraduate level, which equips students with advanced hard and soft skills required for the present-day economists. The department also runs a full-time one-year Master's programme leading to an *MSc in Applied Economics and Data Analysis*. The Department also has a *Doctoral Programme in Economics*, with a maximum intake of about 20 students per year.



The Department of Economics is located North-West of the university's Administration Building. The new building includes two big and five smaller lecture rooms for undergraduate and postgraduate teaching, four computer laboratories, equipped with all the latest statistical packages and other software, four other smaller lectures rooms and a Departmental Library

The department subscribes to all the leading economics journals and to several specialized journals related to the research activities of faculty members. Students and staff members have access to this material through the University's Central Library, which, in addition to a large collection of books covering all the subjects taught in the different Departments, also has a European Documentation Centre.



#### **TEACHING & RESEARCH STAFF**

#### Full-time Academic & Research Staffi

**Professors** 

• Daouli, Joan (Ph.D. 1981, North Carolina State University, USA) (on study-leave in 2020-2021) Research Field: Labour Economics, Microeconomics

Demousis, Michael (Ph.D. 1981, North Carolina State University, USA) Research Field: Microeconomics, Labour Economics, Applied Econometrics

(on study-leave in 2020-2021)

• Dimara, Efthalia (Ph.D. 1988, Université Pierre & Marie Curie, Paris VI, France) Research Field: Applied Statistics, Data Analysis

• Patronis, Vasilios (Ph.D. 1992, Université Paris I - Sorbonne, France) Research Field: Economic History, History of Economic Thought

• Skuras, Dimitrios (Ph.D. 1990, University of Aberdeen, UK)

Research Field: Regional Economics, Economics of Natural Resources

• Tsekouras, Konstantinos (Ph.D. 1995, University of Patras, Greece)

Research Field: Economics of Industrial Organisation, Economics of Innovation, Productivity & Efficiency Analysis •

Giannakopoulos, Nikolaos (Ph.D. 2006, University of Patras, Greece) Microeconomics, Labour Economics

Research Field: Applied

Associate Professors

• Kounetas, Konstantinos, (Ph.D. 2007, University of Patras, Greece) Research Field: Energy Economics, Applied Industrial Organization with a focus on estimation of efficiency

& productivity

Tzelepis, Dimitrios (Ph.D. 2002, University of Patras, Greece) Research Field: Earnings Management, Accounting, Fraud Detection

• Venetis, Ioannis (Ph.D. 2000, University of Essex, UK) Research Field: Theoretical & Applied Econometrics with emphasis on time-series analysis (nonstationarity, non-linear models)

• Zervoyianni, Athina (Ph.D. 1989, University of Warwick, UK) Research Field: Macroeconomics, European Union Economics, Economic Growth

- Tzagarakis, Emmanuel (Ph.D. 2003, University of Patras, Greece)
- Research Field: Data & Knowledge Management

Assistant Professors

• Filis, George (Ph.D. 2004, Bournemouth University, UK) Research Field: International Economics, Financial Economics, Energy Economics, Tourism Economic

- Goulas, Eleftherios, (Ph.D. 2008, University of Patras, Greece) Research Field: Macroeconomics, Economic Development, Financial Economics
- Polymenis, Athanasse (Ph.D. 1997, University of Glasgow, UK) Research Field: Statistics, Mathematics
- Tagalakis Athanasios, (Ph.D. 2005, European University Institute Florence) Research Field: Macroeconomics, Fiscal & Monetary Policy, Labour Economics, Banking & Finance
- Papaioannou Sotirios, (Ph.D. 2007, Athens University of Economics and Business) Research Field: Macroeconomics, Applied Econometrics, Economic

Development Emeritus Professor

• Sypsas, Panagiotis (Ph.D. 1983, University of Lancaster, UK), Specialization: Operational Research, Applied

Statistics

- Daskalou, Victoria (Ph.D. 1998, Athens University of Economics & Business, Greece)
- Specialization: Information Technology

Detailed information about the Department's research activities and output can be found in the Annual Internal Evaluation Reports (www.modip.upatras.gr)

### MSc in Applied Economics & Data Analysis Program of Studies



#### A. About the programme

The Master's degree programme in Applied Economics and Data Analysis combines the fields of economics and data analysis using different econometric and statistical software. In this degree programme, students acquire in-depth knowledge of theoretical concepts and empirical findings on different economic subjects and in-depth methodological knowledge of modern analytical procedures for empirical data. They learn how to prepare, analyze and interpret large data sets. The emphasis of this programme is on learning, applying and critically questioning methods and concepts used in current research to analyze and solve economic issues using empirical data.

The Master's degree programme in Applied Economics and Data Analysis is a research-oriented programme in which students are systematically introduced to the current state of research and in which they conduct a self-designed research project during their studies. After graduation, students are in a strong position to make their own contribution during their career. In the programme, interdisciplinary modules in collaboration with firms and organizations help developing your ability to solve real-world problems by applying suitable economic models and methods of data analysis. Also, continues to build upon what you have learned before by focusing on applications of theories and econometric tools. After a foundation semester containing microeconomics, macroeconomics, econometrics, big data, business economics and topics in IO you will embark upon a whole semester consisting of full-time modules on current topics in economics such as special topics in finance, development economics and business financial analysis.

During classes you will use **programming languages R, Python, Gretl and STATA** which are primarily designed for **statistical and econometric analysis** and the graphic interpretation of results. R and Python provides the possibility for using both statistical and programming functions, while STATA and Gretl have particular interest using panel and time-series datasets. Students are encouraged to use Latex as the preferred editor to author their reports and theses. Answering questions based in economic theory from different fields, a combination of modern empirical methods, such as econometric estimates, simulation techniques and Big Data processing and analysis methods are used during the course. This postgraduate degree programme, which is at the crossroads between economics and computer science, acknowledges the fact that empirical methods for analyzing data in both disciplines are becoming increasingly popular. Due to the evergrowing data sets used to analyze economic issues, methods for handling Big Data are increasingly popular enhancing their way into economics.

#### **B.** Structure of Postgraduate Program

The postgraduate program is organized into two semesters. Each academic semester consists of about thirteen teaching weeks. For the award of the MSc Degree in Economics students are required to pass a total of *4 semester-long applied economic and data analysis courses* in the first (fall) and two elective courses at the second semester (spring). At the end of August postgraduates' students have to present their Master Thesis to the supervising committee consisting of three members.

The Master's Program consists of compulsory courses, which every student must take (*core courses*), and courses that can be chosen by students according to their special interests (*elective courses*). In the current academic year 2022-2023, students are offered a total of seven semester-long economic courses. Of these, 3 are compulsory courses and 4 are elective courses. Parallel but equally important objectives of the curriculum are the strengthening of the critical-thinking capacity, the will for social contribution and the accumulation of social capital.

Courses may consist of only lectures, or lectures and seminars/tutorials, or lectures and practical work in the department's computer lab. Course level assessments are done by semester final written examinations. Grades range from zero (0) to ten (10 with a minimum passing grade of five (5). The final degree grade is a weighted average of the grades in the semester courses which the students have successfully completed during their one-year studies. The weights correspond to the courses' ECTS credits. Postgraduate courses may take various forms to better contextualize the learning process which include:

#### Workshops:

Practical sessions designed to introduce you to skills, methodological frameworks and conceptual frameworks which will be foundational in developing your approach.

#### Lectures:

Their purpose is to transfer and contextualise theoretical concepts relating to performance practice. You may also test out ideas in practice within the context of a lecture. Lectures are not just about sitting and listening, but rather they aim to engage you in in-depth discussions and debates related to the topics that are covered each week. Our approach is student-centred and research-driven.

#### Seminars:

Designed to involve you in discussion and detailed consideration of theoretical concepts, ideas and performance practice. Some seminars may also involve presentation of practical work to both exemplify and develop understanding on a particular topic.

#### **Tutorials:**

Small group or individual discussions with a tutor, used to enhance understanding of practice and theoretical concepts through a tutor's feedback.

#### Work-based practice:

Designed to develop skills through the application of theoretical concepts in practice and to develop a practical understanding.

#### **Guided Learning:**

Designed to support your learning through specific activities which augment, extend and deepen what's covered in timetabled teaching activities.

#### Independent Learning:

This is a crucial part of developing as a learner. Independent Learning is designed to facilitate your independence through enabling you to take responsibility for your learning. You will be required to prepare work outside the class/lecture contact time and should regard this in the same way as preparation and research towards any assignment. The practice of developing an independent, self-

motivated approach to learning and delivery of your work is essential to your success and to achieving good marks.

#### Autonomous Learning:

For some units, particularly at the end of your course, you may be responsible for finding your own material relevant to your specific interests.

Finally, every student is assigned to a *personal tutor* who is a full-time member of the Department's academic staff. His/her role is to provide support and guidance on academic matters, as well as on any other more personal matters that may affect students' life.

#### C. Learning outcomes

In order to obtain the diploma in Applied Economics and Data Analysis, postgraduate students are required to successfully attend and undergo courses (compulsory and elective). The curriculum is structured as follows: The first semester includes 3 compulsory courses and 1 elective. The next semester postgraduate students attend 2 elective courses and they are doing research for the Thesis. The Program Curriculum aims at training scientists capable of confronting challenges of the modern economic environment, developing their analytical skills in Applied Economics and Data Analysis, strengthening their leadership capabilities, becoming familiar in using modern technologies and addressing real economic situations in their future careers. In addition to the basic knowledge of their discipline and profession graduates will be able to apply:

**Critical thinking:** Apply economic analysis to evaluate everyday problems, Apply economic analysis to evaluate specific policy proposals, Quantitative reasoning skills, Understand how to use empirical evidence to evaluate an economic argument, Obtain or collect relevant data using specific research methods, Perform appropriate statistical analysis of data, Interpret statistical results, Develop deeper quantitative thinking skills

**Problem-solving skills:** Analyze problems that have clear solutions, Propose solutions for problems that do not have clear answers

**Communication skills:** Communicate effectively in written or spoken form about specific economic issues, Develop a well-organized written argument that states hypothesis, Present an economic argument orally

Graduates can be employed as economists in various sectors of economy such as central banking, international organizations or private sector firms such as economic consultancies. In addition, the course is especially beneficial for those who want to pursue a Ph.D.

#### **D.** Total ECTS credits required

The program offers a total of six (60) ECTS points.

#### E. Postgraduate Curriculum 2022-2023

A course-summary table per-semester is provided below. The columns following the course titles, indicate weekly lecture hours (L) and weekly tutorial/laboratory hours (T/L). The last column shows the number of ECTS credits.

		· · · ·		
Code course	Course title	Weekly Ho	ours	ECTS credits
		L	T/L	
EFO-01	Applied Micro-econometrics	4	2	8
EFO-02	Applied Macro-econometrics	4	2	8
EFO-03	Managing Big Data	4	2	8
EFO-04	Special Topics in Business Economics	3	2	6
Total ECTS credits				30

#### FIRST YEAR, 1st Semester (Fall)

FIRST	ΥEAR,	$2_{nd}$	Semes	ster	(Spri	ing)	

Course title	Weekly I	Hours	ECTS credits
	L	T/L	
Business Financial Analysis	3	2	6
Development Economics	3	2	6
Special Topics in Finance	3	2	6
Master Thesis	7		18
			30
	Course title Business Financial Analysis Development Economics Special Topics in Finance Master Thesis	Course titleWeekly HLLBusiness Financial Analysis3Development Economics3Special Topics in Finance3Master Thesis7	Course titleWeekly HoursLT/LBusiness Financial Analysis32Development Economics32Special Topics in Finance32Master Thesis71

Detailed information about the aim, content, method of assessment, reading etc. for the BSc courses can be found electronically at <u>https://postgrad.econ.upatras.gr/en/msc/courses</u>

However, all students are expected to demonstrate the same professionalism expected within a professional environment:

- Prompt attendance at all scheduled sessions.
- Involvement and engagement with tasks and sessions.
- Submission of all required materials within deadlines.
- Notification in advance of any problems which prevent your attendance or submission of work.
- Not to leave and re-enter rooms during teaching sessions without a medical reason. To
- switch mobile devices off unless you are using one as an integral technology for the session.
- To facilitate an ideal learning environment for yourself and those students around you.

#### F. Master Thesis

The Master Thesis aims to provide you, at Master's level, with an opportunity to undertake a significant piece of self-managed research in a relevant area of particular interest. Having completed the Master Thesis, you will gain a comprehensive understanding of the techniques applicable to economic research, a deep understanding of the current research and scholarship in a particular research strand and you will enhance your analytical, writing and presentation skills. Further, you will be able to demonstrate your capacity to work independently under the guidance of an academic supervisor and show that you have achieved a good level of competence in academic writing.

The first step for the thesis is to decide on your research topic. The academic staff announces every year (January a list of topics from which you can choose. Of course, you are more than welcome to suggest your own topic, as well. Although, most of the work of the thesis takes place between June and August each year, you are strongly advised to start working on your thesis once the topic has been agreed with your supervisor.

There is a 15.000-word limit for the thesis and the quality of the work is assessed by a threemember committee, comprised your supervisor and two other members of staff. You are required to submit the hard copy of the Master Thesis by the 31<sub>st</sub> August of each year and subsequently, in the early September, you will present your thesis in the three-member committee.

The Master Thesis goes through Turnitin, which is a software that detects possible plagiarism.

#### G. Career opportunities

The postgraduate degree gives you an excellent jumpstart for many jobs requiring advanced analytical and methodological skills in economics. You will have the skills to work closely with decision makers within corporations, and organizations of many types, processing and analyzing large quantities of data and communicating your analyses to colleagues and managers.

Future work for graduates of this programme may include investigating economic problems, collecting data, and performing analyses for domestic or international companies or public organizations such as governmental agencies, municipal agencies, and organizations like the European Commission and the OECD. Some common occupations among our alumni include data analysts, business strategists and business developers.

After graduation you will also be eligible for the doctoral programme in economics the Department of Economics of University of Patras, as well as many other doctoral programmes in economics all over the world.

Finally, each year the committee prepares a questionnaire and conducts a survey of graduates by preparing a report. Further information regarding the postgraduate survey report and testimonials can be found in <a href="http://postgrad.econ.upatras.gr/sites/default/files/attachments/ereyna">http://postgrad.econ.upatras.gr/sites/default/files/attachments/ereyna</a> apofoiton pms 1 1.pd f and <a href="http://postgrad.econ.upatras.gr/el/msc/alumni">http://postgrad.econ.upatras.gr/el/msc/alumni</a> respectively (in Greek).



# Contact Information

### **DEPARTMENT OF ECONOMICS**

#### HEAD OF DEPARTMENT

Venetis Ioannis, Associate Professor Department of Economics, University of Patras GR-265 04 Patras Tel. +30-2610962582 E-mail: <u>tzelepis@upatras.gr</u>

#### DIRECTOR OF POSTGRADUATE PROGRAMME

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#### **ERASMUS COORDINATOR**

Athina Zervoyianni, Associate Professor Department of Economics, University of Patras GR-265 04 Patras Tel. +30-2610996271 E-mail: <u>athina@upatras.gr</u>

#### DEPARTMENTAL SECRETARY

Fertaki Dora Department of Economics, University of Patras GR-265 04 Patras Tel. +30-2610-962590 E-mail: <u>econ-secr@upatras.gr</u>

#### **UNIVERSITY ADDRESSES**

#### RECTOR

C. J. Bouras, Professor. University of Patras, GR-265 04 Patras Tel. +30-2610-991922/991040/996605/996606, Fax:+30-2610-991711 E-mail: <u>rectorate@upatras.gr</u>

#### **DEAN OF THE SCHOOL OF ECONOMICS & BUSINESS**

Vasilis Voutsinas, Professor. University of Patras, Department of Business Administration, GR-265 04 Patras Tel. +30-2610-997845 E-mail: <u>vutsinas@upatras.gr</u>

#### INTERNATIONAL RELATIONS OFFICE

Head of the International Office: Mrs Dimitra Stamatopoulou University Campus, Building A' GR-265 04 Patras Tel: +30 2610 969029, Fax: +30 2610 994441 https://www.upatras.gr/el/intrel

Erasmus+ KA1 outgoing mobility for studies tel.: +30 2610969029, e-mail: llp.outgoing@upatras.gr

Erasmus+ KA1 mobility for traineeships, Erasmus+ management-finance Contact person: Polyxeni Christia, tel.: +30 2610969036, e-mail: llp.placements@upatras.gr

Erasmus+ KA103 incoming mobility for studies, Harvard & Johns Hopkins scholarships Contact person: Mariza Charalambopoulou, tel.: +30 2610 997987, e-mail: llp.incoming@upatras.gr, intern.rel@upatras.gr

Erasmus+ Platform design & management Contact person: Maria Kotsari, tel.: +30 2610969028, e-mail: llp.incoming@upatras.gr; intern.rel@upatras.gr

Erasmus+ KA1 outgoing mobility for teaching and training, Erasmus+ KA1 International Credit Mobility, Academic Networks & Associations Contact person: Gely Pavlopoulou, tel: +30 2610 996610, e-mail: llp.outgoing@upatras.gr, intern.rel@upatras.gr

Memorandums of Understanding (MoU), EU Inter-Institutional Agreements (BAs) Contact person: Natassa Anagnostopoulou, tel.: +302610996613, e-mail: anagno@upatras.gr, intern.rel@upatras.gr, llp.incoming@upatras.gr

#### **DEPARTMENT OF STUDENT ISSUES**

*Manager's Office*, Tel. +30-2610- 997970 Student accommodation & cultural events, Tel. +30-2610-997968 Health services (student support), Tel. +30-2610-996151

#### **UNIVERSITY LIBRARY & INFORMATION**

Management and secretariat, Tel. +30-2610-969613-15 Item acquisitions & bibliographical information, Tel. +30-2610-969616 IT Services, Tel. +30-2610-969631/32

#### FOREIGN-LANGUAGES CENTRE

Secretary, Tel. +30-2610-997370

# STUDENT ACCOMMODATION (NATIONAL INSTITUTE OF YOUTH – IN CAMPUS)

*Manager*, Tel. +30-2610-992362 Call center, Tel. +30-2610- 992359/2360 Management, Tel. +30-2610- 992360 (int. 207-208)

#### STUDENT ACCOMMODATION (IN PROASTIO – NEAR CAMPUS)

Office, Tel. +30-2610-434820 Ground floor, Tel. +30-2610-453203

#### **OTHER SERVICES**

General Regional University Hospital of Patras, Tel. +30-2610-999111 University Sports Complex, Tel. +30-2610-997593 Post Office, Tel. +30-2610-997593 Bank (branch of Piraeus Bank), Tel. +30-2610-997844 Bookstore «Papasotiriou», Tel. +30-2610-995455 Cafeteria-Restaurant «Parko Irinis», Tel. +30-2610-997839

### Academic/Research Staff, Department of Economics E-mail Addresses (in alphabetical order)

#### PROFESSORS

Daouli Ioanna, Professor Demousis Michael, Professor Dimara Efthalia, Professor Filis George, Assistant Professor Giannakopoulos Nikolaos, Professor Goulas Eleftherios, Assistant Professor Kounetas Konstantinos, Associate Professor Papaioannou Sotirios Patronis Vasilios, Professor Polymenis Athanasse, Assistant Professor Skuras Dimitrios, Professor Sypsas Panagiotis, Emeritus Professor Tsekouras Konstantinos, Professor Tagkalakis Athanasios, Assistant Professor Tzagarakis Emmanuel, Assistant Professor Tzelepis Dimitrios, Associate Professor Venetis Ioannis, Associate Professor Zervoyianni Athina, Associate Professor

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#### SPECIAL TEACHING STAFF

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# Annex A–Detailed Description of MSc Courses

First Semester (Fall)

#### APPLIED MICROECONOMETRICS

#### **COURSE OUTLINE**

#### 1. GENERAL

SCHOOL	ECONOMIC	CS & BUSIN	NESS	
DEPARTMENT	ECONOMIC	CS		
LEVEL OF COURSE	POSTGRAD	UATE		
COURSE CODE	EFO 01	SE	MESTER OF	1st
			STUDIES	
COURSE TITLE	APPLIED M	ICROECO	NOMETRICS	
INDEPENDENT TEACHING ACTIVITIES HOURS ECTS CREDITS PER WEEK				
	Lectures an	nd tutorials	4 (lect), 1 (tut)	8
COURSE TYPE	Background Course, General Skills, Skill Development			
PREREQUISITE COURSES:	No			
TEACHING AND	Greek/English			
ASSESSMENT				
LANGUAGE:				
THE COURSE IS	No			
OFFERED TO ERASMUS				
STUDENTS			1 12000	
COURSE WEBPAGE	https://eclass	s.upatras.gr/	<u>'courses/ECON1</u>	331/
(URL)				

#### 2.LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Upon successful completion of the course the student will be able to:

- understand the formal and practical aspects of important microeconometric methods. to apply an analytical method and to recognize its limitations.
- to adopt a model specification and to correctly interpret estimation results. to deal with the empirical literature in microeconometrics and to perform formal econometric
- analyses. perform analyses with economic data using Stata and to interpret Stata output.

### General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

•Search, analyse and synthesize data and information, using the necessary technologies

•Read and understand project reports and journal articles that make use of the concepts and methods introduced in the course

•Make use of the course content in your own academic work, for example in analyses that are part of the master's thesis

- •Decision making
- •Autonomous work
- •Team work
- •Demonstrate social, professional and ethical responsibility and gender awareness
- •Exercise of criticism and self-criticism
- •Promote free, creative and inductive thinking

#### **3.COURSE CONTENT**

- Introduction: Goals and structure of the course, learning aims & objectives, doing empirical analysis, process of project development
  - Basic regression analysis (OLS): Basic tools for regression analysis, interaction effects
- Instrumental variables (IV): Endogeneity problem; instrumental variables; weak instruments; over identification tests; testing for endogeneity and GMM Panel data (A): Panel data structure: fixed and random effects models; Hausman test; Breusch-
- Pagan test; time dummies; clustering or panel-corrected standard errors
  Panel Data (B): Dynamic panel data models: GMM estimators of linear dynamic panel data models; testing for instrument validity; serial correlation test
  - Discrete choice modelling: Binary probity and logit; computing marginal effects; goodness-of-fit; Multinomial choice models; independence of irrelevant alternatives; ordered probit and logit Count
- data models: Poisson model; over-dispersion test; negative binomial model diagnostics and measure of t; zero-inflated models
- Limited dependent variables models: Censored data; Tobit models; marginal effects of Tobit models; sample selection models
  - Policy evaluation methods: Difference-In-Differences, Regression Discontinuity Design

#### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

<b>TEACHING METHOD</b>	Face-to-face			
<b>USE OF INFORMATION</b>	Use of Information and Communicatio	n Technologies (ICTs) (e.g.		
AND COMMUNICATIONS	power point) in teaching. Use the sta	tistical software Stata. The		
TECHNOLOGY	lectures for each chapter are uploaded o	n the e-class platform in the		
	form of ppt files, which the enrolled stud	ents can freely download.		
TEACHING	Activity	Semester workload		
ORGANIZATION	Lectures (4 hours per week x 13	52 hours		
	weeks)			
	Tutorials (1 hours per week x 13	13 hours		
	weeks)			
	Individual work 135 hours			
	Total number of hours for the 200 hours (total			
	Course (25 hours of work-load per	student work-load)		
	ECTS credit)			
STUDENT ASSESSEMNT	The assessment is based on student's per	formance in the written final		
	examination (60%), on nine weekly assignments (average score			
	contributes with 20% in final grade) and on two mid-term			
	examinations during the semester (each one contributes with 10% in			
	final grade). Written final exams take place in a computer room			
	where each student must use the Sta	ta software to answer the		
	questions and to prepare a report.			
	1 1 1			

#### 5.ATTACHED BIBLIOGRAPHY

- Required textbook
- 1. Cameron, A. and Trivedi, P. (2005) Microeconometrics: Methods and Applications, Cambridge University Press.
- 2. Cameron, A. and Trivedi, P. (2010) Microeconometrics Using Stata (Revised Edition), StataCorp LP.

3. Angrist Joshua D. and Stephen Pischke. (2009) Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press.

4. Wooldridge, Jeffrey M. (2010) Econometric Analysis of Cross Section and Panel Data (Second edition). MIT Press.

5. Greene, W.H. (2011) Econometric Analysis, (7th Edition), Pearson Prentice Hall: New Jersey.

- Related Journals List of Journals:

- https://ideas.repec.org/top/top.journals.simple.html

- http://www.scimagojr.com/journalrank.php?category=2002

#### APPLIED MACROECONOMETRICS

#### COURSE OUTLINE

#### **1.GENERAL**

SCHOOL	ECONOMIC	CS & BUSIN	NESS	
DEPARTMENT	ECONOMIC	CS		
LEVEL OF COURSE	POSTGRAD	UATE		
COURSE CODE	EFO 02	SE	MESTER OF	1
COURSE TITLE	APPLIED M	ACROECO	DNOMETRICS	
INDEPENDENT TEACHING ACTIVITIES HOURS ECTS CREDITS PER WEEK				ECTS CREDITS
	Lectures an	nd tutorials	4	8
COURSE TYPE	Special background, Skill Development			
PREREQUISITE COURSES:	No			
TEACHING AND	Greek/English			
ASSESSMENT				
LANGUAGE:				
THE COURSE IS	No			
OFFERED TO ERASMUS				
SIUDENIS	1			220/
COURSE WEBPAGE	nttps://eclass	s.upatras.gr/	courses/ECONT:	<u>050/</u>
(URL)				

#### 2.LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Upon successful completion of the course the student will be able to:

•understand some of the pitfalls, problems, and solutions that arise in applied macroeconomic work

•Critically evaluate applied macro-econometric research

•be familiar with the main approaches to modelling macroeconomic data

•understand the formal and practical aspects of important macro-econometric methods.

•apply analytical methods and recognize their limitations, solve problems associated with identification using macroeconomic data

•be able to report empirical research results obtained using the methods covered.

•perform analyses with macroeconomic data using gretl and to interpret gretl output.

•be able to replicate and present macroeconomic research papers that will enhance their ability to write an advanced dissertation

#### **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma

Supplement and appear below), at which of the following does the course aim?

•Search, analyse and synthesize data and information, using the necessary technologies

- •Read and understand project reports and journal articles that make use of the concepts and methods introduced in the course
- •Make use of the course content in your own academic work, for example in analyses that are part of the master's thesis
- Decision making
- •Autonomous work
- •Team work
- •Demonstrate social, professional and ethical responsibility and gender awareness
- •Exercise of criticism and self-criticism

•Promote free, creative and inductive thinking

#### **3.COURSE CONTENT**

- (A) Introduction software, databases, time series, business cycles
- **(B)** Stationarity/Non-stationarity: Vector AutoRegressive models (VAR models), Vector Error Correction models (VEC models)
- (C) Structural Vector AutoRegressive models (SVAR)
  - a. Impulse response function
  - o b. Forecast error variance decomposition
  - c. Historical decomposition
  - o d. Identification strategies
    - d1. Zero Short-Run restrictions
    - d2. Zero Long-Run restrictions
    - d3. Medium Run restrictions
    - d4. Sign Restrictions
    - d5. Testing Invertibility
    - d6. External Instruments
- **(D)** High-dimensional datasets. Factor models.

#### **Readings**

#### <u>General</u>

Stock, J.H. Watson, M.W. (2001). Vector Autoregressions. Journal of Economic Perspectives Stock, J., and Watson M (2012): Disentangling the Channels of the 2007-2009 Recession. Brookings Papers on Economic Activity

Diebold, F. X. and C. Li, (2006). Forecasting the Term Structure of Government Bond Yields. Journal of Econometrics, 130, pp. 337–364.

Michael W. McCracken and Serena Ng (2016). FRED-MD: A Monthly Database for Macroeconomic Research. pp. 574-589 https://doi.org/10.1080/07350015.2015.1086655

https://research.stlouisfed.org/wp/more/2015-012

Lettau, M., & Ludvigson, S., (2004). Understanding Trend and Cycle in Asset Values Reevaluating the Wealth Effect on Consumption. American Economic Review

Lettau, M., & Ludvigson, S., (2004). Expected returns and expected dividend growth - Journal of Financial Economics

Lettau, M., & Ludvigson, S., (2001). Consumption Aggregate Wealth and Expected Stock Returns - Journal of Finance

Morley J.C (2007). The Slow Adjustment of Aggregate Consumption to Permanent Income. Journal of Money, Credit and Banking, Vol. 39, No. 2-3, 615-638

Perron, P & Wada, T. (2009). Let's take a break: Trends and cycles in US real GDP. Journal of Monetary Economics 56 (2009) 749-765

Lawrence H. Summers (1991). The Scientific Illusion in Empirical Macroeconomics. The Scandinavian Journal of Economics 93(2), pp. 129-148. url: http://www.jstor.org/stable/3440321

Paul Romer (2016). The Trouble With Macroeconomics. https://paulromer.net/trouble-with-

macroeconomics-update/WP-Trouble.pdf and https://paulromer.net/trouble-with-macroeconomics-update/

Also <u>https://paulromer.net/archive/</u>

#### Identification

V.A. Ramey (2016). Chapter 2 - Macroeconomic Shocks and Their Propagation. In: ed. by John B. Taylor and Harald Uhlig. Vol. 2. Handbook of Macroeconomics. Elsevier, pp. 71-162. http://www.sciencedirect.com/science/article/pii/S1574004816000045 (sections 1 and 2 only) Emi Nakamura and Jon Steinsson (2018). Identification in Macroeconomics. Journal of Economic Perspectives 32(3), pp. 59-86. http://www.aeaweb.org/article?id=10.1257/jep.32.3.59

https://www.aeaweb.org/articles?id=10.1257/jep.32.3.59

James H. Stock and Mark W. Watson (2018). Identication and Estimation of Dynamic Causal Effects in Macroeconomics Using External Instruments. The Economic Journal 128(610), pp. 917-948. https://onlinelibrary.wiley.com/doi/abs/10.1111/ecoj.12593

#### Identification - Narrative approach

Christina D. Romer and David H. Romer (2010). The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks. American Economic Review 100(3), pp. 763-801. http://www.aeaweb.org/articles.php?doi=10.1257/aer.100.3.763

Valerie A. Ramey (2011). Identifying Government Spending Shocks: It's all in the Timing. The Ouarterly Journal of Economics 126(1), pp. 1{50, url: http://gie.oxfordiournals.org/content/126/1/1

#### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face-to-face			
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Use of Information and Communication Technologies (ICTs) in teaching (computer based lecture presentations, internet use, videos, databases search). Use the statistical software gretl and R. All teaching material is uploaded on the e-class platform, which the enrolled students can freely download.			
TEACHING	Activity	Semester workload		
ORGANIZATION	Lectures (4 hours per week x 13	52 hours		
	weeks)			
	Computer lab practice (1.5 hours per	20 hours		
	week x 13 weeks)			
	Project, essay writing, homework	48		
	Individual work	80 hours		
	Total number of hours for the	200 hours (total		
	Course (25 hours of work-load per	student work-load)		
	ECTS credit)	,		
STUDENT ASSESSEMNT	The assessment is based on student's per	formance in the written final		
	examination (50%) and on 10 weekly assignments (50%). During the			
	first 2-3 weeks, example/practice assignments are given along with			
	instructions.			

#### **5.ATTACHED BIBLIOGRAPHY**

- Required textbook
  - 1. (MAIN) Heij & de Boer & Franses & Kloek & van Dijk (2004). Econometric Methods with Applications in Business and Economics, OUP, ISBN: 9780199268016 https://sites.google.com/site/lkilian2019/textbook
  - (MAIN) Structural Vector Autoregressive Analysis' by Lutz Kilian and Helmut Lütkepohl,
     Cambridge University Press, 2017.
  - Cambridge University Press, 2017.
     (Time series) Lütkepohl H., (2007). New Introduction to Multiple Time Series Analysis. Springer Berlin Heidelberg New York
  - 4. (Time series) Lütkepohl H. & Krätzig, M., (2004). Applied Time Series Econometrics. Edited
     z by: Lütkepohl Helmut and Markus Krätzig. Cambridge University Press
  - Dy. Latkepoin Heinat and Markus Ktazig. Cambridge University Fress (Time series) - Hamilton, J.D., (1994). Time series Analysis. Princeton, NJ: Princeton University Press.

Bibliography Recommendations:

- Online books: John Cochrane (Chicago), Time Series for Macroeconomics and Finance
- Online books: D.S.G. Pollock (Queen Mary College), The Methods of Time Series Analysis
- Online books: Paul Söderlind (St. Gallen), Lecture Notes in Financial Econometrics

• Online books: A.W. van der Vaart (Vrije U), Time Series
- Related Journals
Lists of Journals:
- https://ideas.repec.org/top/top.journals.simple.html
- http://www.scimagojr.com/journalrank.php?category=2002
Specific Journals:
- Journal of Applied Econometrics
Other:
- https://www.newyorkfed.org/research/amec
- https://voxeu.org/

#### **MANAGING BIG DATA**

#### COURSE OUTLINE

#### 1. GENERAL

DEPARTMENT       ECONOMICS         DEPARTMENT       ECONOMICS         IEVEL OF COURSE       POSTGRADUATE         COURSE CODE       EΦO-03       SEMESTER OF STUDIES       1st         COURSE TITLE       MANAGING BIG DATA       TEACHING HOURS       ECTS CREDITS         INDEPENDENT TEACHING ACTIVITIES       TEACHING HOURS       ECTS CREDITS         PER WEEK       Assessment       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, General Skills, Skill Development, Lab         PREREQUISITE COURSES:       No       Student for the second seco	SCHOOL	FCONOMIC	S & BUSIN	JESS		
Independent for the second	DEDARTMENIT	ECONOMIC	ECONOMICS & DOSINESS			
LEVEL OF COURSE       POSTGRADUATE         COURSE CODE       EΦO-03       SEMESTER OF STUDIES       1st         COURSE TITLE       MANAGING BIG DATA       ECTS CREDITS         INDEPENDENT TEACHING ACTIVITIES       TEACHING HOURS PER WEEK       ECTS CREDITS         VICE       Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, General Skills, Skill Development, Lab       No         PREREQUISITE COURSES:       No       Studeation       Studeation         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English       Studeation       No         OFFERED TO ERASMUS STUDENTS       No       Studeation       No         OFFERED TO ERASMUS STUDENTS       No       Ittp://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data	DEPARIMENT	ECONOMIC	<u>ک</u>			
COURSE CODE       EΦO-03       SEMESTER OF STUDIES       1st         COURSE TITLE       MANAGING BIG DATA       MANAGING BIG DATA         INDEPENDENT TEACHING ACTIVITIES       TEACHING HOURS PER WEEK       ECTS CREDITS BECTS CREDITS         COURSE TYPE       Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, General Skills, Skill Development, Lab       8         PREREQUISITE COURSES:       No       Seck/English       5         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English       S       5         THE COURSE IS STUDENTS       No       No       5         OFFERED TO ERASMUS STUDENTS       No       5       1         MANAGING English       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data	LEVEL OF COURSE	POSTGRAD	UATE			
INDEPENDENT TEACHING INDEPENDENT TEACHING ACTIVITIESTEACHING HOURS PER WEEKECTS CREDITS PER WEEKCOURSE TYPEBackground Course, General Skills, Skill Venoment, Lab8PREREQUISITE COURSES:NoScourse General Skills, Skill Venoment, LabTEACHING AND ASSESSMENT LANGUAGE:Greek/EnglishTHE COURSE IS OFFERED TO ERASMUS STUDENTSNoTHE COURSE IS 	COURSE CODE	ЕФО-03	SE	MESTER OF	1st	
MANAGING BIG DATA         TEACHING HOURS PER WEEK       ECTS CREDITS PER WEEK         Independent teac       Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, Gurse, Gurse, Skills, Skill Development, Lab       8         PREREQUISITE COURSES:       No       Statistical Statisti				STUDIES		
INDEPENDENT TEACHING ACTIVITIES       TEACHING HOURS PER WEEK       ECTS CREDITS         Image: Description of the stress o	COURSE TITLE	MANAGINO	G BIG DAT	ĨA		
INDEPENDENT TEACHING ACTIVITIES       HOURS PER WEEK       ECTS CREDITS         Jenser 1       Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, Geral Skills, Skill Derbennt, Lab       1         PREREQUISITE COURSES:       No       1       1         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English       1       1         OFFERED TO ERASMUS STUDENTS       No       1       1         Mo       1       1       1       1         Magnet Bases       No       1       1       1       1         Magnet Bases       No       1       1       1       1         Magnet Bases       No       1       1       1       1       1         Magnet Bases       No       1       1       1       1       1       1       1       1				TEACHING	i l	
PER WEEK         Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, General Skills, Skill Development, Lab         PREREQUISITE COURSES:       No         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English         Greek/English       No         OFFERED TO ERASMUS STUDENTS       No         COURSE WEBPAGE (URL)       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data	INDEPENDENT TEACH	HING ACTIV	ITIES	HOURS	ECTS CREDITS	
Lectures and tutorials       4 (lect), 2 (tut)       8         COURSE TYPE       Background Course, General Skills, Skill Development, Lab         PREREQUISITE COURSES:       No         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English         THE COURSE IS OFFERED TO ERASMUS STUDENTS       No         OFFERED TO ERASMUS STUDENTS       No         Attp://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data				PER WEEK		
COURSE TYPE       Background Course, General Skills, Skill Development, Lab         PREREQUISITE       No         COURSES:       Greek/English         TEACHING AND       Greek/English         ASSESSMENT       No         LANGUAGE:       No         OFFERED TO ERASMUS       No         STUDENTS       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data         (URL)       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data		Lectures ar	nd tutorials	4 (lect), 2 (tut)	8	
COURSE TYPE       Background Course, General Skills, Skill Development, Lab         PREREQUISITE       No         COURSES:       Greek/English         ASSESSMENT       Greek/English         LANGUAGE:       No         OFFERED TO ERASMUS       No         STUDENTS       No         COURSE WEBPAGE       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data						
PREREQUISITE COURSES:       No         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English         THE COURSE IS OFFERED TO ERASMUS STUDENTS       No         COURSE WEBPAGE (URL)       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data	COURSE TYPE	Background (	Course, Gen	eral Skills, Skill I	Development, Lab	
PREREQUISITE COURSES:       No         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English         THE COURSE IS OFFERED TO ERASMUS STUDENTS       No         COURSE WEBPAGE (URL)       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data		C C			-	
COURSES:       Greek/English         TEACHING AND ASSESSMENT LANGUAGE:       Greek/English         THE COURSE IS OFFERED TO ERASMUS STUDENTS       No         COURSE WEBPAGE (URL)       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data	PREREQUISITE	No				
TEACHING AND       Greek/English         ASSESSMENT       E         LANGUAGE:       No         OFFERED TO ERASMUS       STUDENTS         STUDENTS       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data         (URL)       Kenglish	COURSES:					
TEACHING AND ASSESSMENT     Greek/English       LANGUAGE:     No       THE COURSE IS OFFERED TO ERASMUS     No       COURSE WEBPAGE     http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data       (URL)     Image: Course state sta						
ASSESSMENT LANGUAGE: THE COURSE IS OFFERED TO ERASMUS STUDENTS COURSE WEBPAGE <u>http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data</u> (URL)	<b>TEACHING AND</b>	Greek/English				
LANGUAGE:         THE COURSE IS       No         OFFERED TO ERASMUS	ASSESSMENT					
THE COURSE IS     No       OFFERED TO ERASMUS	LANGUAGE:					
OFFERED TO ERASMUS         STUDENTS         COURSE WEBPAGE         http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data         (URL)	THE COURSE IS	No				
STUDENTS         COURSE WEBPAGE       http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data         (URL)	<b>OFFERED TO ERASMUS</b>					
COURSE WEBPAGE         http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data           (URL)	STUDENTS					
(URL)	COURSE WEBPAGE	http://postgrad.econ.upatras.gr/en/msc/courses/managing-big-data				
	(URL)	0	-			

#### 2.LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

- Upon successful completion of the course the student will be able to:
- •Understand the concept of Big Data and the potential it has for economic analysis
- •Understand how the concept of Big Data influences traditional statistical algorithms and methods.

•Understand the fundamental algorithms in the area of machine learning in five major categories that are specifically designed to cope with Big Data namely: Pre-processing (PCA and SVD), Classification (Decision trees, Naïve Bayes, Random Forests), Regression analysis (Gradient descent and its versions), Clustering (k-means, k-mode, DBSCAN), Association rules analysis (Apriori)

•Understand how to include in economics models variables related to text, sentiments etc.

- •Understand when to use machine learning algorithms and how such algorithms can be used for
- economic analysis in the context of Big Data.

•See how these algorithms can be used in two popular programming languages Python and R. •Get acquainted with contemporary popular packages, modules and libraries in Python and R for data science and used in the context of Big Data.

•Implement and use these algorithms in Python and R to analyse an economic problem.

•Interpret the results of these algorithms when used in the economic domain and draw valid conclusions.

#### **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

- •Understand the role of computational means in the study and analysis of economic problems today
- •Understand the impact of data on the running time of quantitative algorithms
- •Understand how to setup the computational infrastructure in terms of tools, modules and libraries to be able to work with Big Data in the fields of economics
- •Evaluate computational libraries in order to assess them for quantitative research in the field of economics
- •Experiment with machine learning algorithms using Python and R.
- •Work autonomously
- •Work in cooperation
- •Exercise of criticism and self-criticism

•Promote free creative and inductive thinking

#### **3.COURSE CONTENT**

- •Course outline
- •Python for data science and Big Data
- •R for data Science and Big Data
- •Big Data definition and implications
- •Supervised vs Unsupervised machine learning algorithms
- •About data pre-processing: SVD and PCA
- •Classification algorithms: Decision trees, Naïve Bayes, Random Forests
- •Regression analysis: Gradient descent methods (batch gradient descent, mini-batch gradient descent, stochastic gradient descent)
- •Clustering (k-means, k-modes, DBSCAN)

•Association rules analysis (Apriori algorithm

#### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

<b>TEACHING METHOD</b>	Face-to-face			
<b>USE OF INFORMATION</b>	Use of Information and Communication	n Technologies (ICTs) (e.g.		
AND COMMUNICATIONS	power point) in teaching. The lectures for	or each chapter are uploaded		
TECHNOLOGY	on the e-class platform in the form of p	opt files, which the enrolled		
	students can freely download.			
TEACHING	Activity	Semester workload		
ORGANIZATION	Lectures (3 hours per week x 13	39 hours		
	weeks)			
	Tutorials (2 hours per week x 13	29 hours		
	weeks)			
	Individual work 122 hours			
	Total number of hours for the	200 hours (total		
	Course (25 hours of work-load per	student work-load)		
	ECTS credit)			
STUDENT ASSESSEMNT	The assessment is based on student's per	formance in the written final		
	examination (70%) and on their grade (30%) in 5 exercises/ projects			
	that need to be delivered approximately every 2 weeks.			
	The written final examination aims to examine if students understand			
	in which situations to apply the ma	achine learning algorithms		
	presented in the course and if they under	rstand the basic workings of		
	these algorithms.	C		

#### 5.ATTACHED BIBLIOGRAPHY

- Required textbook

Verykios, V., Kotsiantis, S., Stavropoulos, E., Tzagarakis, E.: Data Science – Basic principles, theory and applications in R, New Technologies print, 2019 (In Greek)

EMC Education Services (Editor), Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, Wiley. ISBN: 978-1-118-87613-8, 2005.

Tan, P., Steinbach, M., Kumar, V.: Introduction to Data Mining, Pearson. ISBN-13: 978-0321321367, 2005

Consoli, S., Recupero, D. R., Saisana, M., (Editors): Data Science for Economics and Finance -

Methodologies and Applications, Springer, ISBN: 978-3-030-66893-8, 2021

Provost, F., Fawcett, T.: Data Science for Business. O'Reilly Media, 2013.

- Related Journals

Journal of Big Data, Springer

International Journal of Data Science and Analytics, Springer

#### SPECIAL TOPICS IN BUSINESS ECONOMICS COURSE OUTLINE

#### 1. GENERAL

SCHOOL	ECONOMIC	ECONOMICS & BUSINESS		
DEPARTMENT	ECONOMICS			
LEVEL OF COURSE	POSTGRAD	UATE		
COURSE CODE	EFO-29	SE	MESTER OF 1	st
			STUDIES	
COURSE TITLE	SPECIAL TO	OPICS IN B	SUSINESS ECON	OMICS
			TEACHING	
INDEPENDENT TEACH	HING ACTIV	ITIES	HOURS	ECTS CREDITS
			PER WEEK	
	Lectures an	Lectures and tutorials 3		6
COURSE TYPE	Background Course, General Skills, Skill Development, Lab			
PREREQUISITE	No			
COURSES:				
	<u> </u>			
TEACHING AND	Greek/English			
ASSESSMENT				
LANGUAGE:	NT-			
OFFEDED TO EDASMUS	10			
STUDENTS				
COURSE WEBPAGE	https://poste	rrad econ ur	atras or/el/msc/co	ourses/eidika-themata-
(IRL)	nitps.//postgrad.ccon.upatras.gr/cl/msc/courses/etdika-themata-			
(Chil)	(https://eclass.upatras.gr/courses/ECON1333/)			
	(mepor / cera	<u>patras.er</u>	<u>, coarded, 190141</u>	<u> </u>

2.LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Upon successful completion of the course the student will be able to:

- •Understand specific theoretical streams within the field of the Economics of Industrial Organization and Business Economics
- •Identify business policies that compose and support business strategies and goals
- •Evaluate the determining factors of business performance and growth
- •Know the key elements and components of industrial dynamics
- •Identify the role of market structure in promoting the entrepreneurial mind
- •Analyze how both price and non-price competition between business entities affect economic welfare.
- •Understand the concept of Data and the potential it has for economic analysis in the field of applied Industrial Organization and Business Economics
- •Relate the economic theory with specific datasets and understand how to include in economics models variables
- •Estimate econometric models using R & STATA adapted to the course material
- •Evaluate the results and implement their estimations in the proposed framework.

#### **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

- •Ability to apply the knowledge and understanding acquired to the solution of problems related to Industrial Organization and Business Economics,
- •Understand the connection between economic theory and applied empirical industrial organization and business economics.
- •Understand the impact of data on the previous framework,
- •Work with specific programs like STATA and R and implement econometric estimations depending on the problem.
- •Apply econometric analysis for descriptive and measurement purposes, and test the predictions of economic theories
- •Evaluate the results produced in order to assess them for quantitative research in the field of economics
- •Work autonomously
- •Work in cooperation
- •Exercise of criticism and self-criticism
- •Promote free creative and inductive thinking

#### **3.COURSE CONTENT**

Course outline

- •Production, Technology and cost functions (Basic definitions)
- •Production, Technology and cost functions (Using linear programming to estimate efficiency)
- •Production, Technology and cost functions (Translog production, cost, profit, functions and estimation of efficiency)
- •Production, Technology and cost functions (Productivity, technological, technical and scale change)-Olley Pakes
- •Survival and Firm size
- •Market Performance (Profitability and Growth)
- •Price in established market, price discrimination and pricing in a new product
- •Market structure, entry and exit
- •Business Strategy-Advertising (Advertising and price competition, advertising intensity, uncertainty in advertising)
- Business Strategy-Innovation and R&D (Role of R&D in competition, incentives for R&D and innovation)

#### 4.TEACHING AND LEARNING METHODS - ASSESSMENT TEACHING METHOD

Face-to-face

USE OF INFORMATION	Use of Information and Communication	n Technologies (ICTs) (e.g.	
AND COMMUNICATIONS	power point) in teaching. The lectures for each chapter are uploaded		
TECHNOLOGY	on the e-class platform in the form of	f ppt files, selective articles	
	which the enrolled students can freely do	wnload.	
TEACHING	Activity	Semester workload	
ORGANIZATION	Lectures (3 hours per week x 13	39 hours	
	weeks)		
	Tutorials (1 hours per week x 13	13 hours	
	weeks)		
	Individual work	98 hours	
	Total number of hours for the 150 hours (total		
	Course (25 hours of work-load per	student work-load)	
	ECTS credit)		
STUDENT ASSESSEMNT	The assessment is based on student's per	formance in the written final	
	examination (60%) and on their grade (4	0%) in 5 exercises/ projects	
	that need to be delivered approximately every 2 weeks.		
	The written final examination aims to examine if students understand		
	the topics analysed in the class and how the economic theory		
	proposed is sued in applied research.		
	All exercises require: 1) studying a set of papers 2) implementing		
	scripts in STATA and R that analyse the dataset handed out		
	depending on the topic analyzed per week 3) writing a report		
	discussing the results and comparing the	ese with the results reported	
	in the contemporary literature.		

#### **5.ATTACHED BIBLIOGRAPHY**

#### - Required textbook

Cabral, Luis. Introduction to Industrial Organization, MIT Press, Cambridge, 2000).

Tirole, J., (1993). "The Theory of Industrial Organizationn", MIT Press, London.

Coelli, T. J., Rao, D. S. P., O'Donnell, C. J., & Battese, G. E. (2005). An introduction to efficiency and productivity analysis. Springer Science & Business Media.

Online Book: Church. J. and Ware, R., (2000). "Industrial Organization: A Strategic Approach", McGraw-Hill, Boston.

Besanko, D., Dranove, D., Shanley, M., & Schaefer, S. (2000). Economics of Strategy. John Wiley&Sons. New York.

Carlton, D. W. and Perloff, . J.M. (2005). "Modern Industrial Organization". Pearson/Addison Wesley, Boston.

Fried, Harold O., CA Knox Lovell, and Shelton S. Schmidt, eds. The measurement of productive efficiency and productivity growth. Oxford University Press, 2008.

Harold, O., ed. The Measurement of Productive Efficiency: Techniques and Applications: Techniques and Applications. Oxford University Press, 1993.

- Related Journals Journal of Industrial Economics, Small Business Economics, European Journal of Operational research, International Journal of Industrial Organization RAND journal of Economics

## Second Semester (Spring)

#### **Business Financial Analysis**

#### COURSE OUTLINE

#### 1. GENERAL

SCHOOL	ECONOMICS & BUSINESS			
DEPARTMENT	ECONOMICS			
LEVEL OF COURSE	GRADUATI	GRADUATE		
COURSE CODE	EFO-06	SE	MESTER OF 2	2nd
			STUDIES	
COURSE TITLE	Business Fina	incial Analys	sis	
INDEPENDENT TEACH	HING ACTIV	ITIES	TEACHING HOURS PER WEEK	ECTS CREDITS
		Lectures	3	6
	ſ			
COURSE TYPE	Skill Develop	ment		
PREREQUISITE	No			
COURSES:				
TEACHING AND	Greek			
ASSESSMENT				
LANGUAGE:				
THE COURSE IS	No			
OFFERED TO ERASMUS				
STUDENTS	1 //			
COURSE WEBPAGE	http://postgr	ad.econ.upa	<u>itras.gr/en/msc/c</u>	ourses/business-tinancial-
(URL)	<u>analysıs</u>			
2.LEARNING OUTCOM	ES			

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Upon successful completion of the course the student will be able to:

- Analyze and understand the business and competitive strategy of a firm
- Understand how accounting rules and conventions represent a firm's business economics and strategy in its financial statements
- Analyze assets, liabilities, entities, revenues, and expenses
- Effectively evaluate a company's accounting choices and accrual estimates
- Analyze financial ratios and cash flow measures of the operating, financing, and investing performance of a company relative to either key competitors or historical performance
- Develop forecasted financial statements and use them to make estimates of a firm's value.

#### **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

•Search, analyze and synthesize data and information, using the necessary technologies

•Adapt to new situations

•Decision making

 $\bullet Autonomous \ work$ 

•Team work

#### **3.COURSE CONTENT**

1.

#### Framework for Business Analysis and Valuation Using Financial Statements

- The Role of Financial Reporting in Capital Markets
- From Business Activities to Financial Statements
- Influences of the Accounting System on Information Quality
- From Financial Statements to Business Analysis

#### 2.Strategy Analysis

- Industry Analysis
- Competitive Strategy Analysis
- Corporate Strategy Analysis

#### 3. Fundamentals of Financial Accounting

- Generally Accepted Accounting Principles (GAAP)
- Basic accounting equation
- Elements of Financial Statements (assets, liabilities, equity, revenues, expenses)
- Impact of business transactions on basic accounting information
- Financial statements

#### 4.Implementing Accounting Analysis

- The Institutional Framework for Financial Reporting
- Factors Influencing Accounting Quality
- Steps in Performing Accounting Analysis
- Accounting Analysis Pitfalls
- Value of Accounting Data and Accounting Analysis
- Recasting Financial Statements

#### • Making Accounting Adjustments

#### 5. Financial Analysis for Decision Making

- Comparative Analysis
- Ratio Analysis
- Cash Flow Analysis
- Profitability Analysis
- Credit Analysis
- Liquidity and Working Capital Analysis
- Analysis of Operating Activity of Liquidity
- Capital Structure
- Solvency Analysis

#### 6. Prospective Analysis: Forecasting

- The Overall Structure of the Forecast
- Performance Behavior: A Starting Point
- Making Forecasts
- Sensitivity Analysis

#### 7.Valuation Theory and Concepts

- The Discounted Dividend Valuation Method
- The Discounted Cash Flow Model
- The Discounted Abnormal Earnings Model
- The Discounted Abnormal Earnings Growth Model
- Valuation Using Price Multiples
- Shortcut Forms of Earnings-Based Valuation
- Comparing Valuation Methods

#### 8.Valuation Implementation

- Detailed Forecasts of Performance
  - Terminal Values
  - Computing a Discount Rate
- Computing Equity Value

#### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face-to-face		
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Use of Information and Communication Technologies (ICTs) (e.g. power point) in teaching. The lectures for each chapter are uploaded on the e-class platform in the form of ppt files, which the enrolled students can freely download		
TEACHING	Activity	Semester workload	
ORGANIZATION	Lectures (3 hours per week x 13	39 hours	
	weeks)		
	Individual work	111 hours	
	Total number of hours for the	150 hours (total	
	Course (25 hours of work-load per	student work-load)	
	ECTS credit)		
STUDENT ASSESSMENT	The course offers a combination presentations, class discussions and reac course is the practical application of empirical evidence to real-world business	of lectures, case-studies dings. A key feature of the the academic theory and cases.	
	The course is assessed through weekly delivery of a group business analysis examinations: one mid-semester examine examination (50%).	7 sort assignments and the s project (30%), and two nation (20%) and the final	

#### 5.ATTACHED BIBLIOGRAPHY

- Palepu, K. G., Healy P., Bernard, V. and Peek, E. "Business Analysis and Valuation, IFRS, fifth edition", 2022, Cengage Learning.
- Pratt, J., 2014. Financial Accounting in an Economic Context (9th ed.). New York: Wiley. Chapters: 1, 2, 3, 4, 6, 7, 8, 9, 12, and 13.
- Brealey, R.A., Myers, S.C. and Marcus, A.J., 2015. Fundamentals of Corporate Finance (8th ed.). International Edition: McGraw-Hill Education, ISBN 978-0077861629, (Chapters 1, 5, 8, 9, 11, 12, 13, 16, 17)
- Subramanyam, K.R. and Wild, J.J., 2014. Financial Statement Analysis (11th ed.). New York: Irwin/McGraw-Hill. Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11.

#### **DEVELOPMENT ECONOMICS**

#### COURSE OUTLINE

1. GENERAL

SCHOOL	ECONOMIC	CS & BUSIN	NESS	
DEPARTMENT	ECONOMIC	ECONOMICS		
LEVEL OF COURSE	POSTGRAD	UATE		
COURSE CODE	EFO-18	SEI	MESTER OF	2nd
			STUDIE5	
COURSE TITLE	DEVELOPM	IENT ECO	NOMICS	
			TEACHING	3
INDEPENDENT TEACH	HING ACTIV	ITIES	HOURS	ECTS CREDITS
	PER WEEK			
	Lectures 3 (lect.) 6			
COURSE TYPE	Field of Scien	ice		
PREREQUISITE	Suggested pre	erequisites: A	Applied Macro-e	conometrics, Applied Micro-
COURSES:	econometrics			
TEACHING AND	Greek/Englis	sh		
ASSESSMENT	_			
LANGUAGE:				

THE COURSE IS OFFERED TO ERASMUS	No	
STUDENTS		-
(URL)	<u>https://eclass.upatras.gr/courses/ECON1594/</u>	
2.LEARNING OUTCOM	ES	
Learning outcomes		
The course learning outcomes, specific acquire with the successful completion	knowledge, skills and competences of an appropriate level, which the students will of the course are described.	
On satisfying the requirements	for this course, students will be able to:	
<ul> <li>critically evaluate econ</li> </ul>	omic problems of developing countries.	
• effectively participate i reforms in developing	n the contemporary policy debate on development priorities and policy countries.	
• synthesize and explain economics.	the current state of research and thought in the field of development	
<ul> <li>analyze a development</li> </ul>	strategy within the context of current theory and empirical work.	
<ul> <li>evaluate the effectiven</li> </ul>	ess of a development program using econometric tools.	
<ul> <li>produce an independe</li> </ul>	nt research paper tackling the pressing issues in development through	
synthesizing the causal	estimation techniques, data from developing countries and economic	
General Competences		
Taking into consideration the general	competences that the degree-holder must acquire (as these appear in the Diploma	
Supplement and appear below), at wh	the following does the course aim?	
•Autonomous (independent) we	ork	
•Search, analyze and synthesize	data and information, also using the necessary technologies	
•Decision making		
•Adapt to new situations		
•Work in an international enviro	onment	
•Production of new research ide	eas	
•Promoting free, creative and in	ductive thinking	
•Respect for diversity and multi	culturalism	
<b>3.COURSE CONTENT</b>		_
•Concepts & Measures of Econ	omic Development	
•Economic Growth		
•Industrialization & Structural	Fransformation	
•Inequality & Poverty - Measure	ement	
•Poverty Inequality & Develop	ment	
• Depulation / Eastility	incht	
•Education/Child Labor		
•Rural & Urban		
•Debt, Financial Crises & IMF	Lending Instruments	
•Foreign Finance, Investment &	z Aid	
4.TEACHING AND LEA	RNING METHODS - ASSESSMENT	
TEACHING METHOD Fa	ce-to-face	
USE OF USE INFORMATION AND tex COMMUNICATIONS PF TECHNOLOGY	se of Information and Communication Technologies (ICTs) (e.g. p aching. The lectures for each chapter are uploaded on the e-class platform at files, which the enrolled students can freely download.	ower point) n in the form

	Total number of hours for the Course (25 hours of work-load per ECTS credit)	150 hours (total student work-load)
STUDENT ASSESSMENT	1.Final exam: 60%	
	2.Individual assignments (2): 40%	
	There will be two individual assignments, so each assignment will be worth 20% of the overall grade. Assignment 1 will be in the form of an individual data exercise, while Assignment 2 will be a short research paper on a selected country/group of countries. Students are required to present their findings.	
	The evaluation criteria are described in the posted on the platform eclass.upatras.gr.	e Course Syllabus, which is

#### 5.ATTACHED BIBLIOGRAPHY

- Required textbook

- 1 Ray, Debraj, Development Economics. Princeton, 1998.
- . Todaro, Michael P. and Stephen C. Smith, *Economic Development*. 12th Edition, Pearson, 2015.
- 2 Thirlwall, Anthony P., and Penélope Pacheco-López, Economics of Development: Theory and
- . Evidence. Palgrave, 2017.
- 3 Söderborn, Måns, et al. Empirical Development Economics. Routledge, 2014.
- . Alain de Janvry and Elisabeth Sadoulet, *Development Economics: Theory and Practice*, Routledge, 2016.

- Related Journals

World Development; Journal of Development Economics; Journal of Peasant Studies; The Journal of Development Studies; Development and Change; The World Bank Economic Review; Journal of International Development; Development Policy Review

#### **Special Topics in Finance**

#### COURSE OUTLINE

#### 1. GENERAL

SCHOOL	ECONOMIC	ECONOMICS & BUSINESS		
DEPARTMENT	ECONOMICS			
LEVEL OF COURSE	POSTGRAD	UATE		
COURSE CODE	EFO-07	SE	MESTER OF	2nd
			STUDIES	
COURSE TITLE	Special topics	in Finance		
			TEACHING	3
INDEPENDENT TEACH	HING ACTIV	ITIES	HOURS	ECTS CREDITS
			PER WEEK	
	Lectures and tutorials		3 (lectures)	6
COURSE TYPE	Advanced fin	Advanced finance skills, research skills, critical evaluation skills		
PREREQUISITE	No			
COURSES:				
TEACHING AND	Greek			
ASSESSMENT				
LANGUAGE:	NT			
I HE COURSE IS	No			
OFFERED IO ERASMUS				
51UDEN15	http://p-st-		atura au / au /	/acumos /anagist to pig-
COURSE WEDPAGE	nttps://postgrad.econ.upatras.gr/en/msc/courses/special-topics-			
(URL)	linance			
	nups://eclass	s.upatras.gr/	courses/ ECON	1434/

#### 2.LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Having completed this unit the student is expected to:

- Critically assess theoretical concepts applicable to the financial markets; Communicate and critique the functioning of the financial markets;
- Solve complex problems to assist in financial decision making;
- Demonstrate an in-depth knowledge of appropriate research techniques in the field of the financial markets;
- Conduct effective research in the field of the financial markets by synthesising and analysing concepts in a meaningful way.

### General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

•Search, analyze and synthesize data and information, using the necessary technologies

- •Decision making
- •Autonomous work
- •Team work
- •Respect for diversity and multiculturalism
- •Exercise of criticism and self-criticism
- •Promote free, creative and inductive thinking

#### **3.COURSE CONTENT**

- •Introduction to financial markets
- •Capital markets and asset valuation
- •Asset price volatility
- •Diversification, efficient portfolios and market portfolio
- •Capital Asset Pricing Model and Efficient Market Hypothesis
- •Behavioural finance
- •Bond pricing, duration, convexity and credit default swaps
- •Term and risk structure of interest rates
- •Forex market, purchasing power parity and interest rate parity
- •Derivatives: Futures, Forward and Option contracts
- •Trading strategies using derivatives

#### 4. TEACHING AND LEARNING METHODS - ASSESSMENT

I EACHING METHOD	Face-to-face			
<b>USE OF INFORMATION</b>	Use of Information and Communication	n Technologies (ICTs) (e.g.		
AND COMMUNICATIONS	power point) in teaching. The lectures for	r each chapter are uploaded		
TECHNOLOGY	on the e-class platform in the form of p	opt files, which the enrolled		
	students can freely download.			
TEACHING	Activity	Semester workload		
ORGANIZATION	Lectures (3 hours per week x 13	39 hours		
	weeks)			
	Assessments 21 hours			
	Individual work 90 hours			
	Total number of hours for the 150 hours (total			
	Course (30 hours of work-load per	student work-load)		
	ECTS credit)			
STUDENT ASSESSEMNT	The assessment of the unit is based on tw	vo written courseworks, four		
	take-away tests and a final written exam.			
	The final grade is based on the following weights:			
	Take-away test: 20%	_		
	Final written exam: 50%			

Written courseworks: 30%
Written examinations deal with issues of in-depth understanding of key concepts, comparative evaluation of competitive theories and solving numerical problems related to the content of the course. Exam papers and take-away tests comprise multiple-choice questions and open questions.
** The above student evaluation method is a pilot one and will be re- examined at the end of academic year 2018-2019

#### **5.ATTACHED BIBLIOGRAPHY**

- Indicative list of textbooks Arnold, G., 2011. Modern Financial Markets and Institutions. Pearson Education Limited. Bodie, Z. Kane, A. and Marcus, A., 2022. Investments. 12th Edition. McGraw-Hill Hull, J., 2021. Options, Futures, and Other Derivatives - Global Edition. 11th Edition. Pearson Education Ltd. Mishkin, F.S., 2021. The Economics of Money, Banking and Financial Markets - Global Edition. 13th Edition. Pearson Higher Education. Pilbeam, K., 2018. Finance and Financial Markets. 4th Edition. Palgrave Macmillan. - Related Journals Journal of Finance Journal of Financial Economics Journal of Financial Markets Journal of International Financial Markets, Institutions and Money Journal of International Money and Finance among others ... - Web-based sources

www.bloomberg.com www.economist.com www.finance.yahoo.com www.ft.com https://fred.stlouisfed.org/

