

**ΟΙΚΟΝΟΜΙΚΟ  
ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΑΘΗΝΩΝ**



**ATHENS UNIVERSITY  
OF ECONOMICS  
AND BUSINESS**

## **INTERNATIONAL RELATIONS OFFICE**

**76 PATISSION STR. / ATHENS 10434 / HELLAS**

**T:+ 30 210-8203 250, 270 <http://www.aueb.gr>**

### **ERASMUS+ Programme**

#### **COURSES OFFERED IN ENGLISH**

**Academic Year 2017-2018**

**Fall Semester (from 02.10.2016 till 09.02.2017)**

**Spring Semester (from 12.02.2017 till 29.06.2017)**

1. All Erasmus incoming students are kindly requested to take into consideration that the above mentioned dates **MUST** be respected (ERASMUS STUDENT CHARTER: Erasmus students should comply with internal regulations of the host institution). As a result they should not reserve their return tickets for earlier dates.
2. All Erasmus incoming students are entitled to a 2-week period after their registration in order to make the modifications of courses they wish and finalize their learning agreement.
3. Attendance at each course is compulsory, after submission of the final Learning Agreement. Three justified absences from each course are accepted. The same applies for the Modern Greek Language course, which is offered free of charge at each semester.

## **SCHOOL OF ECONOMIC SCIENCES**

### **DEPARTMENT OF INTERNATIONAL AND EUROPEAN ECONOMIC STUDIES**

#### **FALL SEMESTER**

##### **1. The Changing European Monetary Union, George Zanias**

6 ECTS credits

##### **Course Content**

An introduction to the economics of a monetary union (optimum currency areas, benefits and costs of a common currency).

The economics of the European Monetary Union (EMU): EMU institutions and policies.

The recent international financial crisis and the European fiscal/banking crisis.

Responses to the crisis and enhancement of the EMU structure (new economic governance rules, Banking Union, plan to complete the EMU).

##### **Level**

Intermediate level, appropriate mainly for third year students of economics or related subjects.

##### **Course Objective**

The purpose of this course is to understand the initial weaknesses of the EMU and the changes recently introduced to deal with these weaknesses that were revealed during the recent crisis.

##### **Textbooks/material**

Economics of Monetary Union by Paul De Grauwe and recent material from the EU/ECB internet site.

##### **Recommended Prerequisite Knowledge**

Intermediate-level knowledge of International Economics such as presented in Robert Feenstra and Alan Taylor, 2008, International Economics, Worth

##### **Recommended Books on Globalization**

Dani Rodrik, 1997, Has Globalization Gone too Far?, Peterson Institute

Joseph Stiglitz, 2003, Globalization and Its Discontents, Norton

Jeffrey Frieden, 2006, Global Capitalism: Its Fall and Rise in the 20th Century, Norton

Dani Rodrik, 2011, The Globalization Paradox: Democracy and the Future of the World Economy, Norton

Additional reading of (mainly) journal articles will be provided after the first lecture.

##### **Course Evaluation**

The overall evaluation in this course is based on the following items:

1. Comprehensive Final Exam (50% of the final grade) covering all the units and topics presented in the lectures.

2. Students will have to work on a project (approximately 5000 words), to do in-class presentation (30 minutes), and to deliver the essay to their discussant a week prior to their presentation (35% of the final grade).

3. Students will have to write a comment on another student's project (maximum 1000 words) and to present it in class (15% of the final grade).

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## **2. International Economics**, Thomas Moutos, P. Hatzipanayiotou

6 ECTS credits, Intermediate Level

### **Communication with Lecturer**

E-mail: [tmoutos@aueb.gr](mailto:tmoutos@aueb.gr)

### **Course Description**

International Trade: Theory and Policy

Presentation of the current theoretical and policy developments in the literature of International Trade: Absolute and comparative advantage in international trade; International trade and income distribution; Factor endowments and international trade; International trade and international factor movements; International trade in imperfectly competitive markets; Instruments and the political economy of international trade policy; Preferential trading agreements and the theory of economic integration.

International Monetary Relations: Theory and Policy

Presentation of the current theoretical and policy developments in the literature of International Monetary Relations: Exchange Rates and open economy macroeconomics; Exchange rate systems and exchange rate crises, Effectiveness of international macroeconomic policy; International monetary system.

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## **3. Legal Aspects of European Integration**, Asterios Pliakos

6 ECTS credits, Advanced Level

### **Course Content**

- The history of European Integration.
- The structure of the European Union.
- The Constitution of the European Union.
- The Community legal order.
- The Institutions.
- Community Legislation and legal instruments.
- Policy-making and administration.
- The application of EU law.
- The European Judicial System.
- The objectives, the means and the principles of the EU.
- Fundamental rights.
- The freedoms.
- The policy regulation mechanisms.
- Competition law.
- External relations.

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#### **4. Economics of EU Competition Policy**, Chrysovalanto Milliou

6 ECTS credits, Intermediate Level

##### **Communication with Lecturer**

[cmilliou@aueb.gr](mailto:cmilliou@aueb.gr)

##### **Course Content**

In this course, we will analyze a number of firms' practices in markets in which firms have significant market power. The firms' practices that we will mainly analyze are: mergers & acquisitions, cartels, abuses of dominant position. Moreover, we will examine the policy measures that are undertaken in order to control such practices, i.e., competition policy. We will try to understand the reasons that firms follow these practices, the implications of these practices on consumers and welfare, as well as how these practices are treated by the law and the competition policy authorities.

Throughout the course, we will analyze a number of real world examples that took place mainly in the EU. By the end of the course, the students will be familiar with the main firms' practices that reduce competition, the methods of competition policy, and their applications.

##### **Prerequisites**

Microeconomics

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## **SPRING SEMESTER**

#### **1. Economics of Globalization**, Thomas Moutos

6 ECTS credits, Advanced Level (4th year course)

Communication with Lecturer

E-mail: [tmoutos@aueb.gr](mailto:tmoutos@aueb.gr)

##### **Course Objective**

The purpose of this course is to examine the forces that have shaped the evolution of the world economy during the last two centuries (with special emphasis on developments after World War II), and to study the consequences for national and individual welfare of the increased pace of worldwide economic integration.

##### **Course Content**

1. A Brief Historical Overview of the World Economy
2. International Trade in Goods
  - (a) Effects on National Welfare
  - (b) Distributional Implications
3. The Effects of Preferential Liberalization
4. Economic Integration, Labour Markets and Migration

- 5. Outsourcing
- 6. Capital Movements and Exchange Rate Regimes
  - (a) Fixed Exchange Rates
  - (b) Flexible Exchange Rates
  - (c) Monetary Unions

## **DEPARTMENT OF ECONOMICS**

### **FALL SEMESTER**

**1. Labour Economics**, Natassa Miaouli (E. Hatziharitou)  
6 ECTS credits, Intermediate Level (3rd year course)

#### **Communication with Lecturer**

ehatzi@aueb.gr

#### **Course Content**

The role of the resource of labor in the productive procedure. The importance of Labour Economics and its relation with the other social sciences. The economic and institutional factors of the labor market. The analysis of labor market at local, regional, national, European and international level. The main determinants of the size of the labor force and its quality. The investment in human capital. Static and dynamic analysis of the individual and total labor supply. The elasticity of labor supply. Labor force mobility and efficiency. The short – run and long – run demand for labor under competitive or non-competitive conditions in the product market. The elasticity of labor demand. Wage determination and resource allocation under competitive or non-competitive conditions. Labour unions and collective bargaining. The economic impact of unions. The wage structure and labor market discrimination. Employment and unemployment: a brief reference of what is happening in the European Union countries. Unemployment data sources, its measurement and its comparability between the European Union countries. How the various countries confront the social problem of unemployment.

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**2. Theory and Practice of Economic Integration**,  
6 ECTS credits, Advanced Level (4th year course)

#### **Communication with Lecturer**

ehatzi@aueb.gr

#### **Course Content**

Part I

The creation of the unified internal market:

- Economic Integration and its forms
- Partial and general equilibrium analysis of the custom duties effects
- The welfare effects of custom duties quotas and subsidies

- The theory of custom union and its effects. A partial and general equilibrium analysis
- Fiscal unions and tax harmonization

#### Part II

The structural policy of the European Union, its instruments and its targets:

- European Social Fund and European Social Policy
- European Agricultural Fund
- European Fund of Regional Development and Regional Economic Policy
- Cohesion fund
- The Budget of the EU

#### Part III

Historical Reference of the Monetary Union: From the European Monetary System to the Economic and Monetary Union and the Common Currency, EURO:

- The system of the ECU
- The Single Act
- The Criteria of Maastricht
- The Three Stages of the Monetary Union
- The Euro: The Mechanism of the Unique Money

#### Part IV

The Theory of Monetary Integration

- The theory of "Optimum Currency Areas" and its criticism
- The benefits of a common currency
- The comparison between costs and benefits
- The European Monetary System and its imperfections

#### Part V

The Implementation of the Central Banks European System:

- The European System of Central Banks
- The European Central Bank
- The Policy of the European Central Bank

Note: All the Erasmus students have the opportunity to write an essay under the supervision of their professor.

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### **3. Principles of Sociology,**

6 ECTS credits, Introductory level, (2<sup>nd</sup> year course)

#### **Course Objectives**

The course aims to introduce students to the science of Sociology and, specifically, to acquaint them with basic concepts, analytical tools and research methods. The presentation of classic and

modern sociological theories and perspectives, fundamental sociological concepts (social structure, action, organization, social reproduction/transformation, social facts, social interaction, culture, stratification and social class, social inequalities etc.), and of quantitative and qualitative research methods purports to equip students with the proper knowledge and analytical skills that will enable them to approach, analyze, understand and interpret critically the social, cultural, economic, political processes and dimensions of our contemporary –complex, globalized, and rapidly changing– social world(s).

### **Course Contents**

Session 1. Introduction to Sociology

Session 2. Founders of Sociology: The development of French, German, British and Italian Sociology

Session 3. Modern Sociological Theories: Functionalism, Conflict Theory, Symbolic Interactionism

Session 4. Sociological Research Methods: Quantitative and qualitative research methods

Session 5. Culture, Social Structure and Socialization

Session 6. Stratification, Social Class and Inequalities

Session 7. Gender, Race and Ethnicity: Social discrimination, exclusion and inequalities

Session 8. Political Sociology: Forms of Government and Social Movements

Session 9. Sociology of Work: The social organization of work and the experience of employment and unemployment

Session 10. Media, Popular Culture and Consumption

Session 11. Urban Sociology: Forms of urbanization in contemporary social world

Session 12. Sociology in a globalized world: Social, Cultural, Political, Ecological, Labour Changes

Session 13. Oral presentations of group assignments.

### **Mode of Delivery**

Face-to-face teaching, class discussion, group student work and oral presentations of assignments

### **Textbook and Reading**

#### ***Main textbook:***

Anthony Giddens, *Sociology*, 6<sup>th</sup> edition, Polity Press, Cambridge: 2009.

#### ***Recommended books for further reading:***

- M. Hughes-C. J. Kroehler, *Sociology: The core*, 7<sup>th</sup> edition, The McGraw-Hill Companies, 2005
- S. Hall-B. Gieben, *Formations of Modernity*, Polity Press/Blackwell Publ., Oxford 1992
- G. Ritzer, *Modern Sociological Theory*, 7<sup>th</sup> Edition, The McGraw-Hill Companies, 2008.

\* Course participants will be informed about additional-recommended reading in every session.

### **Planned learning activities and teaching methods**

Regular three-hour Lectures per week/ Internet-based communication with students. At every lecture we will present and discuss main subject matters of Sociology, as it's referred in Course Content. We will follow largely A. Giddens' book, but we will also draw material from additional resources, in order to accomplish a more comprehensive presentation of sociological subject-areas. Students will have to join in groups of 3 or 5 individuals and to conduct a research on the same topic that will be announced to them in the first meeting. The joining of students from different countries will provide an interesting and important ground for comparative sociological research work. At the last lecture,

student research teams will have to present orally their assignments. This presentation will offer the possibility for critical sociological discussion and will testify students acquired analytical skills.

### **Assessment methods and criteria**

Final written exam (80%)

Written assignment and Oral presentation of assignment (20%)

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## **4. Industrial Organization,**

6 ECTS credits, Level: (3rd year course)

### **Learning Outcomes**

After successful completion of this course the students must have understood the historical evolution of the Theory of Industrial Organisation and must have learned the basic concepts and definitions of the subject as well as its relation to other fields of economic science. They must have also learned the theories concerning the horizontal and vertical limits to the size of the firms, to analyze in depth monopolies, strategies of price discrimination, as well as strategies of tying and bundling. They must be able to analyze oligopolistic interaction by using the tools of Oligopoly Theory: Cournot, Bertrand and von Stackelberg models and must have learned to relate measures of market concentration and market performance. They must be able to understand and distinguish between different notions of product differentiation and to examine oligopolistic competition under product differentiation. They must also be able to understand and analyze models of entry of firms and of barriers to entry, models of tacit collusion and the theory of market failures and micro-economic policy. Finally, they must be able to measure the social welfare losses due to monopoly power and the basic principles of regulation and competition policy.

### **Mode of delivery**

Face-to face

### **Prerequisites (recommended)**

Micro-economic theory

### **Course contents**

- Introduction, basic concepts and relation of Industrial Organisation to other fields of economics.
- A simple model of industrial organisation: social optimum, perfect competition and monopoly compared. Reasons for market failure. Welfare losses of monopoly power.
- The theory of the firm. Horizontal and vertical limits to the size of the firm. Vertical integration: motives for, and monopoly power.
- Price discrimination of first, second and third degrees. Tying and bundling.
- Oligopoly theory: Oligopolistic competition with homogenous products – detailed analysis of the Cournot, Bertrand and von Stackelberg models. Market concentration: measurement and relation to prices and profits.
- Product differentiation: oligopolistic competition under product differentiation – the Hotelling model. Choice of location. Comparison of oligopolistic equilibria.
- Dynamic oligopoly theory: tacit collusion models.



- Theory of entry deterrence: type and measurement of entry barriers and models of entry deterrence. Contestability theory and sunk costs. Endogenous vs. exogenous entry costs.
- Introduction to competition policy and regulation.

### **Recommended or required reading**

Main Textbook: Cabral L. (2000) "Introduction to Industrial Organisation", MIT Press.

More Advanced: Belleflame P. and Peitz M. (2010) "Industrial Organisation – Markets and Strategies", Cambridge University Press.

### **Planned learning activities and teaching methods**

Students are given periodically sets of exercises and they have to prepare answers. The exercises are discussed in tutorials. Marks of course work does not count towards the final mark.

### **Assessment methods and criteria**

By written examination at the end of the semester

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## **SPRING SEMESTER**

### **1. Business Economics, Helen Louri**

6 ECTS credits, Intermediate Level (3rd year course)

#### **General Information**

**Professor:** Helen Louri

**Course Meetings:** Friday 15:00-18:00 in Room D4, 4<sup>th</sup> floor, Derigny building.

**Office:** Derigny Building, 4<sup>th</sup> floor, office hours Friday 13-15:00.

**Email Contacts:** [elouri@aueb.gr](mailto:elouri@aueb.gr)

**Web Site:** Look at the website of this course on e-class: <http://eclass.aueb.gr>

#### **Course Description**

Managerial (or Business) Economics is the application of economic theory to decisions made by firms. Our focus is on four topics. We start with demand theory and consumer behaviour, studying how consumers and other firms respond to price changes and thus how to decide what price to charge. We then move to production and cost theory, where we think about the most basic decisions of firms: how much to produce and what inputs to use (optimal boundaries). We then analyze pricing strategies under different market structures and the strategic world of managers (market and competitive analysis). Then we look at how firms choose (and maintain) their competitive advantage. Lastly, we look inside the firm, on how firms are organized and the way they evaluate and reward performance (optimal internal structure). Managerial economics provides a comprehensive application of economic theory and methodology to managerial decision making.

## Course Objectives

The learning objectives of the course:

- To enable students to develop the skills and to provide the opportunity to practice the study of Managerial Economics.
- To develop a critical understanding of methods, procedures and current issues and debates appropriate to the study of Managerial Economics.

By the end of the course the students should:

- have gained a knowledge and understanding of the themes, issues and debates within the study of Managerial Economics
- be able to think critically and independently about what they have seen and read
- have been introduced to the range of skills and critical vocabularies needed to facilitate the study of Managerial Economics
- gained a critical understanding of the application of the methods involved in the study of Managerial Economics

## Textbooks and Reading

The main textbook of the course is:

1. Besanko, D., Dranove, D., Shanley, M., Shaefer, S., Economics of Strategy, John Wiley and Sons, 5<sup>th</sup> edition, 2010.

Course participants will be given a package of additional reading in some sessions. For those interested in further reading the following books are recommended:

2. W. Bruce Allen, Neil Doherty, Keith Weigelt, and Edwin Mansfield, Managerial Economics, Norton, 7<sup>th</sup> edition, 2009.
3. Church J. and R. Ware (2000), Industrial Organization: A Strategic Approach, McGrawHill.
4. Keat, P. and Young, P., Managerial Economics, Prentice Hall, fifth edition, 2006.
5. Lazear E. and M.Gibbs, Personnel Economics in Practice, Wiley, 2<sup>nd</sup> edition, 2009.

## Course Outline

- i. Introduction; Theory of the Firm
- ii. Does Management matter?
- iii. Basics of Demand and Supply & consumer behaviour
- iv. Individual and Market Demand; Estimating Demand
- v. Production and Cost Theory

- vi. Profit maximization and competitive supply-optimal boundaries
  - vii. Market power and pricing
  - viii. Business strategy and game theory
  - ix. Markets with Asymmetric Information
  - x. Strategic position and dynamics
  - xi. Internal organization
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## **2. Theory and Practice of Economic Integration,**

6 ECTS credits, Advanced Level (4th year course)

**E-mail Contact:** ehatzi@aueb.gr

### **Course Content**

#### Part I

The creation of the unified internal market:

- Economic Integration and its forms
- Partial and general equilibrium analysis of the custom duties effects
- The welfare effects of custom duties quotas and subsidies
- The theory of custom union and its effects. A partial and general equilibrium analysis
- Fiscal unions and tax harmonization

#### Part II

The structural policy of the European Union, its instruments and its targets:

- European Social Fund and European Social Policy
- European Agricultural Fund
- European Fund of Regional Development and Regional Economic Policy
- Cohesion fund
- The Budget of the EU

#### Part III

Historical Reference of the Monetary Union: From the European Monetary System to the Economic and Monetary Union and the Common Currency, EURO:

- The system of the ECU
- The Single Act
- The Criteria of Maastricht
- The Three Stages of the Monetary Union
- The Euro: The Mechanism of the Unique Money

#### Part IV

The Theory of Monetary Integration

- The theory of "Optimum Currency Areas" and its criticism
- The benefits of a common currency

- The comparison between costs and benefits
- The European Monetary System and its imperfections

#### Part V

The Implementation of the Central Banks European System:

- The European System of Central Banks
- The European Central Bank
- The Policy of the European Central Bank

Note: All the Erasmus students have the opportunity to write an essay under the supervision of the lecturer.

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### **3. Money and Banking,**

6 ECTS credits, level: 3<sup>rd</sup> year course

#### **Learning Outcomes**

The course aims to introduce students in the field of Monetary Theory, producing them with knowledge and skills concerning the Role of Money, the Monetary System and the Banking System.

#### **Mode of Delivery**

Face-to-face.

#### **Prerequisites and co-requisites**

Not applicable.

#### **Recommended Optional Programme Components**

Microeconomic Theory I, Macroeconomic Theory I.

#### **Course contents (should contain topics in:)**

The Role of Money. Money and Economic Activity. The Macroeconomic Framework. The Financing Balance of the Economy. The Monetary and Credit System. The Market of Financial Intermediation. The direct Capital market. Banking Operations. Banks Models. Banks Behaviour and Strategy. Banks and Risk Management. Assets and Liabilities Management. The Role of the Central Bank. Money Supply. Money Demand. Interest Rate Determination.

#### **Recommended or required reading**

1. Mishkin S. Frederic, *“Economics of Money, Banking and Financial Markets”*, (ISBN13: 9780133836790, or ISBN13/International Edition: 9781292094182), Publisher: Pearson Education, 11<sup>th</sup> International Edition, 2014 [Recommended Bibliography]
2. Ritter S. Lawrence, Silber L. William, Udell F. Gregory, *“Principles of Money, Banking and Financial Markets”* (ISBN13: 9780321339195), Publisher: Pearson Education, 12<sup>th</sup> Edition, 2008. [Alternative Bibliography]

#### **Planned learning activities and teaching methods**

2 Regular two-hour Lectures per week/ Internet-based communication with students.

### **Assessment methods and criteria**

Final written exam.

### **Work placement(s)**

Not applicable.

## **4. Public Economics**

### **Professor Tryphon Kollintzas**

Office : 4<sup>th</sup> Floor, Derigny Wing, Main Building

Postal address : Patission 76

104 34 Athens

Tel. : +30-2108203340

Fax : +30-2108203301

Email: : [kollintzas@hol.gr](mailto:kollintzas@hol.gr)

Teaching hours : TBA

Office hours : TBA

### **Course Description**

This is the basic intermediate level course in public economics. Public economics or public finance studies the role of government in the economy. In particular, public economics seeks answers to the following four questions:

- (a) When should the government intervene in the economy?
- (b) How might the government intervene in the economy?
- (c) What are the effects of government interventions on economic outcomes?
- (d) Why governments choose to intervene in the way they do?

Too abstract? Not really, because another way economists highlight the usefulness of a course like this is by claiming that “it helps you understand the public finance issues discussed in the front page of newspapers everyday.” For, police protection, national security, immigration policy, health care, all levels of education, environment protection, social insurance, social security, unemployment insurance, disability insurance, welfare programs, mobile phone and tv licenses, internet regulation and all kinds of income, property and consumption taxes are all subject matters of public economics.

The analysis of public economics has two forms: positive analysis that examines what actually happens, as with the answers to questions (c) and (d), above; and normative analysis that examines

what should have happened, as with the answers to questions (a) and (b), above. In so doing, both theory and empirical observation is used interactively in the study of the underlying problems and conclusions.

### Teaching Method

A series of lectures, typically, twice a week, is the basic teaching method. Some exercises will be handed out in class, but, they will not be graded.

### Evaluation Method

There will be a one-hour midterm and a two-hour final examination, based on the exercises handed out in class. The midterm and the final contribute 1/3 and 2/3 of the course grade, respectively.

### Curriculum

Week	Subject	Readings
1	Introduction	Gruber Ch. 1 (Rosen Ch. 1)
2	The Government Budget	Notes & Gruber Ch. 4
3	Reasons for State Intervention (Efficiency and Equity) I	Gruber Ch. 2
4	Reasons for State Intervention (Efficiency and Equity) II	Rosen Ch. 4 and Notes
5	Externalities	Gruber Chs 5 and 6 (Rosen Ch. 6)
6	Public Goods -	Gruber Ch. 7 (Rosen Ch. 5)
7	Midterm Exam – Local Public Goods	Gruber, Ch. 10

8	Cost Benefit Analysis	Gruber Ch. 8 (Rosen Ch. 12)
9	Political Economy and Democracy	Gruber, Chs 9.1-9.3 (Rosen Ch. 7)
10	Public Choice and Government Failure Difficulties of Reform Implementation	Gruber, Ch. 9.4 and Notes
11	Social Insurance and Social Security	Gruber, Chs 12 and 13
12	Taxation and Efficiency	Gruber, Chs 18 and 20 (Rosen Ch. 14 and 15)
13	Taxation and Equity	Gruber, Ch. 19 (Rosen Ch. 13)
-	Final Exam	
<p>In addition, students should read Gruber, Ch. 3 on their own.</p> <p>Readings in parentheses (.) are optional.</p>		

**Books:**

Gruber, J., *Public Finance and Public Policy*, Fifth Edition, Macmillan, 2016

Rosen, H.S., and Gayer, T., *Public Finance*, Ninth Edition, Irwin-McGraw Hill, 2016

**Prerequisites:**

This is an intermediate level, undergraduate course. A prerequisite for this course is knowledge of basic microeconomics, macroeconomics, and statistics.

## **SCHOOL OF BUSINESS**

### **DEPARTMENT OF MANAGEMENT SCIENCE AND TECHNOLOGY**

#### **FALL SEMESTER**

**1. Modern Enterprise Information Systems**, George Ioannou  
6 ECTS credits, Advanced Level

#### **Communication with Lecturer**

ioannou@aueb.gr

#### **INSTRUCTOR**

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George Ioannou, Professor of Production and Operations Management

**Office:** 47A Evelpidon Str. & 33 Lefkados Str., 9<sup>th</sup> floor, 912

**Office Phone:** 2108203652

**Office Hours:** Thursday 09:00 to 11:00 am

**E-mail:** [ioannou@aueb.gr](mailto:ioannou@aueb.gr)

**Web:** [www.msl.aueb.gr/people.html](http://www.msl.aueb.gr/people.html)

**Class Room:** 80 Patision Str., 3<sup>rd</sup> floor, DMST laboratory

**Class Hours:** Wednesday 18:00 – 21:00

#### **COURSE DESCRIPTION**

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Modern Enterprise Information Systems include all the transactional level platforms and integrated software applications that enable the capturing of company data within data bases in a structured and efficient way. The most typical such system is the ERP, which incorporates functionalities that cover all business tasks, from the procurement of materials to the collection of payments from customers, and from the issue of a production order to the delivery of consolidated shipments to the customers' warehouse, all within a single and totally integrated system. The specific course will address ERP in its whole, i.e., will cover all applications areas in enterprises of today and will also provide additional knowledge about systems that go beyond and complement ERP's transactions such as CRM, WMS, etc. Practical sessions on widely used ERP systems will be offered on top on theoretical and applied-knowledge lectures. Lab exercises, case studies and assignments will be the basis of grading in this course.

#### **COURSE OBJECTIVES**

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Students will:



Analyze a business' enterprise activities, workflow and process to identify problems, weaknesses, strengths, threats, opportunities, stakeholders and entities interacting with the enterprise;  
Propose reengineered enterprise processes that optimize the enterprise's performance;  
Design integrated organizational structures and business processes that optimize the enterprise's performance, overcome problems and weaknesses of current processes;  
Understand the scope of ERP systems and corporate motivation for implementing ERP;  
Appreciate the challenge associated with implementing such large-scale systems and the dramatic impact these systems have on key business processes;  
Gain an understanding of process integration inherent in ERP;  
Solve optimization models for production planning and models for operations management;  
Gain an appreciation of related concepts, technologies, and trends in ERP including forward, backward, and upward integration of the enterprise using supply chain management and customer relationship management;  
Experience the Microsoft Office Excel, Microsoft Office Visio, Expert Choice and Microsoft Dynamics NAV software.

## **COURSE TOPICS**

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The course will cover the following topics:

Supply Chain Management Overview  
Enterprise Resource Planning (ERP) Systems Overview  
Optimization Models for Production Planning (Microsoft Office Excel)  
Models for Operations Management (Microsoft Office Excel)  
Business Process Reengineering (BPR) using Microsoft Office Visio  
Multi-criteria Decision Making (The Analytic Hierarchy Process, AHP) using Expert Choice  
Microsoft Dynamics NAV – An ERP System

## **COURSE METHODOLOGY**

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The goal of this course is to develop analytical and critical thinking skills for the development of integrative plans for enterprise-wide systems that optimize enterprise performance. Most class sessions will involve lecture and extensive discussion of ERP based on content contained in the textbooks, readings and cases. Students will be expected to make substantial contributions to the learning process through participation in class discussion. In addition, they will be responsible for several individual assignments.

To pass this course students should:

Prepare: Spend as much time needed to study the assigned topics before coming to class;  
Practice: Review and practice the lab exercises at their own pace;  
Present: complete the homework assignments, come to class, and deliver their work to the instructor.

## **COURSE PLATFORM**

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Students will find course lectures, assignments, useful links etc. at the following links:

E-learning portal: <https://edu.dmst.aueb.gr/>

Management Science Support: <http://www.msl.aueb.gr/msupport.html>

## **COURSE MATERIAL**

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Hamilton S. *Managing your Supply Chain using Microsoft Navision*. New York: McGraw-Hill; 2004.

Hamilton S. *Maximizing your ERP System: A Practical Guide for Managers*. New York: McGraw-Hill; 2003.

Presentations (Lectures)

## **REQUIRED SOFTWARE**

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Microsoft Office Excel (to solve optimization models for production planning and operations management)

Microsoft Office Visio (business process reengineering)

Expert Choice (multi-criteria decision making - AHP)

Microsoft Dynamics NAV (ERP System)

## **ASSIGNMENTS**

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The assignments are designed to familiarize students with the major challenges involved in specifying, selecting and implementing ERP. Assignments include lab exercises and cases studies related to optimization models for production planning, models for operations management, business process reengineering methodology, analytic hierarchy process and Microsoft Dynamics NAV. Students will be responsible for individual assignments.

*All assignments should be submitted by e-mail to [pzlappas@aueb.gr](mailto:pzlappas@aueb.gr).*

## **STUDENT RESPONSIBILITIES**

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This class requires a consistent and substantial week to week commitment on the part of the student. Students are expected to complete reading assignments prior to class and to participate actively in class discussion. Assignments should be emailed on the specified due date. Late work will receive no credit.

Class participation is measured by student's active involvement in discussion of the lab exercises and cases.

## **ACADEMIC INTEGRITY POLICY**

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In accordance with The Athens University of Economics and Business' Academic Regulations, cheating in any form will not be tolerated. This includes plagiarism or receiving inappropriate assistance on examination and/or assignments. Cheating is an extremely serious academic offence.

## TENTATIVE SCHEDULE

Topic	Sub-topic	Specialty
Introduction	ERP Systems Overview	Introduction to Enterprise Resource Planning Systems (ERPs) Architecture and Technical Specifications of ERPs Operational Issues and Modern ERPs Advantages of using ERPs in Modern Enterprise Critical Issues for a Successful ERP Integration Methodological Approach for choosing and Integrating ERPs
Maximizing your ERP System I	Supply Chain Management Overview	Logistics in Supply Chain Management Technology Structure Operations Network Designs Administration Optimization Models for Production and Operations Management
Maximizing your ERP System II	Material Requirement Planning	Needs for Material Planning Basic MRP Concepts Factor Affecting the Computation of MRP Objectives of MRP System Prerequisites and Assumptions of MRP Inputs to MRP MRP Outputs MRP Logic in Brief Manufacturing Resource Planning (MRP II) MRP Implementation How Can Industry Benefit from MRP?
Material Requirement Planning ( <b>Lab Exercises</b> )		
Technology Platforms for ERP Systems		
Multi-criteria Decision Making	Analytic Hierarchy Process	Decision Hierarchy Preferences Synthesization Applications Decision Making using Expert Choice
	<b>Lab Exercises</b>	
	<b>Assignment</b>	Case Study
Managing your Supply Chain using Microsoft Dynamics NAV I	<b>Lab Exercises</b>	Case Study
Managing your Supply Chain using Microsoft Dynamics NAV II	<b>Lab Exercises</b>	Case Study

## **2. Managerial Decision Making, Manolis Kritikos**

6 ECTS credits, Advanced Level

### **Communication with Lecturer**

kmn@aueb.gr

### **Course Outline**

This course outline describes the course Managerial Decision Making. It has been organized into the following sections:

1. Basic Information about the Course
2. Aim of the course
3. Planned learning activities and teaching methods
4. Learning Outcomes
5. Reading List
6. Syllabus
7. Course Assessment.

### **Basic Information about the Course**

Prerequisites:	None
Teaching Methods:	The class meets once a week
Consultation Time/Tutorials:	Wednesday 14.00-17.00

### **Course Objectives**

The course introduces the student to the methodology of decision making, as well as to the major models used today. Decision making is one of the most important functions of management. The three major categories of models are covered: Linear and Integer Programming, Decision Analysis, and Simulation. In each unit, the student is exposed to a number of applications, and has the opportunity to apply his/her knowledge to a number of problems such as Transportation, Assignment and Network models. In addition to developing models, the student is exposed to a number of computer packages, most of them based on Excel, to use in order to solve the problems.

### **Planned Learning Activities and Teaching Methods**

We cover the course material in lectures. Attending lectures is compulsory. This is the best way of being introduced to a topic. Self-study is a vital and significant part of studying for the course.

### **Learning Outcomes**

Decision-Making is one of the most important functions of management. Today's business environment is characterized by high competition, constant changes, extensive globalization, large availability of data and information, and the huge penetration of information and telecommunications technology. In this environment, decision making is increasingly based on the use and analysis of data, through the development of "models", and the use of user-friendly, PC-based computer packages.

On completion of this course, students should be able to: to understand and formulate decision making problems, and to use the computer technology efficiently in order to make the best decision.

## Reading List

### Required Textbook

G.P.Prastacos, (2008), Managerial Decision Making Theory and Practice, Tsinghua University Press

### Recommended Reading

N.Balakrishnan, B.Render, and R.M.Stair, Jr. (2013), Managerial Decision Modeling with Spreadsheets, Pearson Education Inc.

C.P.Bonini, W.H.Hausman and H.Bierman, (1997), Quantitative Analysis for Management, McGraw-Hill / Irwin

G.L.Nemhauser and L.A.Wolsey, (1999), Integer and Combinatorial Optimization, Wiley Interscience

W.L.Winston and S.C. Albright,(2002), Practical Management Science, South-Western College Pub.

## Syllabus

### Managerial Decision Making

#### Overview

The Fundamentals of Operations Research: Introduction to management Science; The methodology of Decision Making; Models in Managerial Decision Making

Linear Programming (LP): Introduction; Characteristics of LP Problems; Graphical solution of a LP problems; A Maximization Problem; a Minimization Problems; Problems General Formulation and Assumptions of LP problems

Sensitivity analysis in Linear Programming: Dual Prices in LP; Reduced costs in LP; Changes in the Objective Function's Coefficients; Changes in the Right Hand Sides (RHS) of the Constraints; Evaluation of a New Activity

Using Solver to Solve Linear Programming Problems: Introducing the model in Excel; Solving the Problem; Understanding and Analyzing the Solution – SOLVER Reports.

Integer Programming (IP): Introduction; Formulating IP Problems with Binary Variables; Formulating IP Problems; Solving IP problems; Solving Integer Programming Problems with SOLVER.

Implementing Management Science in Practice: Marketing and Sales problems; Production and Inventory problems; Networks and Transportation problems; Logistics and Supply Chain problems; Investments problems; Human Resources problems.

Decision Analysis and Precision Tree: Introduction; Criteria for Making Decision under Uncertainty; The Expected Value of Perfect Information; Decision Tree; Calculating the Risk Profile a Strategy; Sensitivity Analysis; Using Precision Tree to Solve Decision Analysis Problems.

Simulation: Introduction; Implementation of Simulation under Conditions of Uncertainty

Using Excel and @Risk in Simulation: Introduction; Simulation of Queuing Systems; Simulation of an Inventory System; Analysis of Simulation Results.

#### Course Assessment

The following notes offer guidance on how you will be assessed for the course. The final grade will be based on homework, classroom participation, an individual essay, case studies and a final exam. The breakdown of the final grade will be approximately as follows:

- 20% homework and classroom participation
- 30% individual essay and group case studies
- 50% final written exam

### **3. Management of Information Systems**

Angeliki Poulymenakou

6 ECTS credits, Advanced level

#### **Communication with Lecturer**

akp@aueb.gr

#### **Course Objectives** (expected learning outcomes and competences to be acquired)

This course aims to introduce to the student the essential dimensions related to the management of Information technology and Systems in modern organisations. Related topics include the pervasive role of ICTS in the economy and in organisations, IS planning and strategy, Types of IS used currently in organisations, E-business, E-commerce, Knowledge Management and e-learning, approaches for developing Information Systems, Outsourcing, the organisation and the business roles of the IS function, IS evaluation and the economics of ICT.

#### **Prerequisites**

No prerequisite. Student should, however, be familiar with the fundamentals of IT, and understand databases and software development methods at a basic level.

#### **Course Content**

The course largely follows the chapter structure of the book provided as essential reading (Turban et al).

#### **Recommended Reading Material**

Turban, McLean, Wetherbe (2010) Information Technology Management (8th Edition). Wiley.

#### **Teaching Methods**

Lectures, tutorials, case study workshops.

#### **Methods of Assessment**

Individual project, class assignments.

### **4. Innovation in Organizations: Knowledge, Creativity and the Processes of Innovation,**

Eric Soderquist

6 ECTS credits, Advanced level

#### **Communication with the Lecturer**

soderq@aueb.gr

#### **Learning Outcomes**

Today, all kinds of organizations and businesses must have the ability of constantly innovating and turning environmental uncertainty into exploitable advantages. In this context, demands for creative thinking, and better use of organizational knowledge for enhanced innovation performance and innovation output are raised on employees at all levels. This course provides an introductory overview of innovation, innovation processes and innovation management, placing particular emphasis on the underlying phenomena of knowledge and creativity. The objective is to

improve the students' understanding the nature and dynamics of organizational knowledge, the prerequisites and processes of organizational creativity, and how knowledge and creativity relate to innovation.

Innovation in itself will also be analyzed. Various forms of innovation that can be pursued by organizations will be explained, and the students will develop frameworks for analyzing how different organizational structures, processes and management methods can be used for implementing and managing innovation. The course aims at opening up the black box of innovation and equipping the students with concepts and frameworks that will help them to apprehend and better manage innovation.

### **Mode of delivery (face-to-face, distance learning)**

Face-to face teaching, individual student work and student presentations.

### **Prerequisites and co-requisites**

Introductory courses in Management and/or Business Strategy and/or Organizational Behaviour are recommended.

### **Recommended optional programme components**

Independent research and use of bibliographical sources to synthesize material and analyze specific topics related to innovation.

### **Course Contents**

#### INTRODUCTION TO THE COURSE (SESSION 1)

- Structure and Requirements
- Overview of the three subject topics – Innovation, Creativity and Knowledge

#### INNOVATION (SESSIONS 2-4)

- Forms of innovation, overview of determinants for innovation,
- Drivers for innovation – the dynamics of technological change,
- Innovation management frameworks, the new product and service development process, bringing innovation to the market,
- Modes and types of innovation co-development: Open Innovation,
- Ten Types of Innovation.

#### INTERMEDIARY PRESENTATIONS (SESSION 5)

#### CREATIVITY (SESSIONS 5-7):

- Overview of creativity as a concept – nature, core elements and factors enhancing / blocking creativity,
- Developing the creative potential of human resources – tools for directed creativity,
- Strategic management frameworks and their relation to creativity and innovation,
- Establishing “creativity channels” through cooperating with end users, customers, academics and scientists.
- The Egg Game – Creativity and team-building game.

#### KNOWLEDGE (SESSIONS 8-10)

- The language of knowledge,
- Forms of organizational knowledge,
- New knowledge creation processes: The role of absorbing and exploiting external knowledge for innovation,

#### FINAL PRESENTATIONS (SESSIONS 11-12)

## Recommended or Required Reading

Textbooks:

Textbooks are recommended only for the part on innovation management. One of the following textbooks is a useful background reading for the entire course:

- Afuah, A. *Innovation Management: Strategies, Implementation and Profits*, Oxford University Press, 2003.
- Burgelman, R.A. Christensen, C.M. & Wheelwright, S.C. (2008), *Strategic Management of Technology and Innovation*, 5th Edition, McGraw-Hill.
- Keely, L. et al (2013), *Ten Types of Innovation: The Discipline of Building Breakthroughs*, John Wiley.
- Schilling, M. (2013), *Strategic Management of Technological Innovation*, 4th Edition, McGraw-Hill.

Additional useful books are (including one on Knowledge and one on Creativity):

- Christensen, C.M. (1997), *The Innovators Dilemma*, Harvard Business School Press.
- Christensen, C.M. & Raynor, M.E., (2003), *The Innovators Solution*, Harvard Business School Press.
- Collison, C. & Parcell, G. (2004), *Learning to Fly: Practical Knowledge Management from Leading and Learning Organizations*, Capstone Publishers.
- Michalko, M. (2001), *Cracking Creativity: The Secrets of Creative Genius for Business and Beyond*, Ten Speed Press.

Articles

In the following, articles are listed for each of the three different parts of the course. Two articles in each part are compulsory readings for all students. These articles are listed first and marked with \*. Another three or four articles are listed per part, as an indication of important readings depending on the subject of the dissertation selected by the students. In addition, a separate reading list will be provided.

### INNOVATION

Dyer, J.H., Gregersen, H.B. & Christensen, C.M. (2009) "The Innovator's DNA ", *Harvard Business Review*, December: 61-67.\*

Van der Panne G., and Van Beers C. and Kleinknecht A., 2003, 'Success and failure of innovation: a literature review', *International Journal of Innovation Management*, 7, 3, 309-338.\*

Christensen, Clayton M.; Baumann, Heiner; Ruggles, Rudy; Sadtler, Thomas M. (2006), "Disruptive Innovation for Social Change", *Harvard Business Review*, December: 94-101.

Fleming, L. and Sorenson O., 2003, 'Navigating the technology landscape of innovation', *Sloan Management Review*, 44, 2, p.15

Hansen, M. T. & Birkinshaw, J. (2007), "The Innovation Value Chain", *Harvard Business Review*, June: 121-130.

Huston, L. & Sakkab, N. (2006) "Connect and Develop: Inside Procter & Gamble's New Model for Innovation", *Harvard Business Review*, March: 58-66.

### CREATIVITY

Amabile, T.M., Schatzela, E., Moneta, G & Kramer, S. (2004) "Leader behaviors and the work environment for creativity: Perceived leader support ", *Leadership Quarterly*, 15: 5-32, 2004.\*



Florida, R. & Goodnight, J. (2005), "Managing for Creativity", Harvard Business Review, July-August: 124-131.\*

Amabile, T.M. et. al. (2002) "Creativity under the Gun", Harvard Business Review, August: 52-61.

Kim, W.C. & Mauborgne, R. (2004) "Blue Ocean Strategy", Harvard Business Review, October: 76-84.

Sutton, R.I. (2001), "The Weird Rules of Creativity", Harvard Business Review, September: 94-103.

## KNOWLEDGE

Argote L., McEvily B., Reagans R., (2003), "Managing Knowledge in Organizations: An Integrative Framework and Review of Emerging Themes", Management Science 49(4): 571-582.\*

Nonaka I, Toyama R., Konno N., (2000), "SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation", Long Range Planning 33:5-34.\*

Brown J.S., Duguid P., (1999), "Organizing Knowledge", California Management Review, 40(3): 90-111.

Hansen M.T., Nohria N., Tierney T. (1999) "What's your Strategy for Managing Knowledge?" Harvard Business Review, 77(2): 106-116.

Nielsen, B. & Michailova, S. (2007), "Knowledge Management Systems in Multinational Corporations: Typology and Transitional Dynamics", Long Range Planning, 40: 314-340.

Soderquist, K.E. (2006), "Organising Knowledge Management and Dissemination in New Product Development: Lessons from 12 Global Corporations", Long Range Planning, 39(5): 497-523.

## Planned Learning Activities and Teaching Methods

Nine lectures and three presentation sessions. Lectures, reading assignments, exercises, games, individual student work and student presentations.

## Assessment Methods and Criteria

80% of the grade is based on an individual (or pair) dissertation (60% written report, 20% presentation).

20% of the grade is based on reading assignments and individual participation.

It is recommended that the dissertation is done in pairs of two students. Each student must explicitly indicate his/her individual contribution to the whole and the presentation must be shared between the students.

Students will select topic area after the introduction session, and the initial reading of articles (emphasize on Innovation or Creativity or Knowledge). The final dissertation must contain a synthesis of various literatures on the selected subject, and an integration of examples from practice through the study of company/organization cases and company/organization websites. Students are also encouraged to enrich their dissertation with first-hand empirical data, e.g., from interviews with managers or other relevant actors in Greece or in their home country of studies.

A template for the dissertation will be handed out at the beginning of the class. Indicatively, the dissertation should be about 6.500 words (between 6.000 and 7.000 words).

## Work placement(s)

N.A.

## **5. Information Resource Management**

Athanasia (Nancy) Pouloudi

6 ECTS Credits

Level: Advanced

### **Communication with Lecturer**

pouloudi@aueb.gr

### **Course Objective (Expected Learning Outcomes and Competences to be acquired)**

This is an advanced course on the management of information systems in organizations. Four main axes define the learning outcomes of the course:

- The strategic role of IT in contemporary business and strategic planning for information resources and systems
- The business role of IT as a tool for supporting and promoting business functions and management and the managerial skills associated with this role
- The fundamental role of IT in developing and supporting new business models
- The functional structure (department/ services) of IT in contemporary business, its human resources and management
- Broader socio-economic aspects related to the use of IT in contemporary business

In this course, students are introduced to the basic themes and activities of the information systems manager in a business organization.

### **Prerequisites**

No prerequisite

### **Course Contents**

No prerequisite

### **Recommended Reading**

A series of articles/case studies will be provided in class

### **Teaching Methods**

Lectures and Seminars. In the course of the seminars case studies will be analyzed and presented by student groups.

### **Assessment Methods**

Written exams and presentation of case studies in the course of the seminars

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## **SPRING SEMESTER**

### **1. Production and Operations Management, George Ioannou**

6 ECTS credits, Advanced level

### **Communication with Lecturer**

ioannou@aueb.gr

## **Learning Outcomes**

The aim of the course is to introduce the student to the design, analysis, reengineering, optimisation and functional control of Manufacturing and Service operations, and to highlight the need for effective management of the constrained resources of operations systems. Through the course, the student will understand the organizational structure and the various components and functions of a Production or Service Operations System. They will practice basic analysis and problem-solving methods that are used by all kinds of organizations to understand and optimize operations.

The topics of the course cover the major business processes inherent in the operation systems, starting from operations strategy – showing the bigger picture of operations in a transforming global economy. Then the course delves into product, service and process design, forecasting, facility location and layout, procurement and inventory management, operations scheduling, and, finally, quality control. In summary, the course provides: a) an introductory overview of the major areas of operations management, b) an understanding of the practical and theoretical problems encountered in operations, and, c) practice of tools and techniques for effective operations management emphasizing both qualitative reflection and quantitative methods.

## **Mode of delivery (face-to-face, distance learning)**

Face-to face teaching, individual work on cases and exercises.

## **Prerequisites and co-requisites**

Fundamentals in quantitative methods. Fundamentals in management.

## **Recommended optional programme components**

Simulation Game.

Video Tours of operations issues in companies and organizations.

## **Course contents**

The topics included within the scope of Production and Operations Management (POM) are numerous and diverse. The following list provides the areas that will be covered within the course including recommended readings, which are available to the students through the AUEB Library and e-Library.

1. Introduction – Definitions
  - Course content and structure
  - Context and definitions of POM

Readings:

- o "Operations as a Competitive Weapon", Chapter 1 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Merrifield, R. et al (2008), "The Next Revolution in Productivity", Harvard Business Review, June, pp. 73-80.

2. Operations Strategy and Lean Production
  - The strategic framework, Illustration and deployment of operations strategies
  - "New" operations strategies – Agile Operations

Readings:

- o "Operations Strategy", Chapter 2 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Pisano, G.P. & Shih, W.C. (2009), "Restoring American Competitiveness", Harvard Business Review, July-August, pp. 114-125.
- o Womack, J.P. & Jones, D.T. (2005), "Lean Consumption", Harvard Business Review, March, pp. 59-68.

3. Product, Service and Process Design and Development

- Key concepts in product and service design
- The product development process and project
- Classifications of production process structures (product and process). Video

Readings:

- o "Process Design Strategy", Chapter 3 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Bonabeau, E et al (2008), A More Rational Approach to New Product Development, Harvard Business Review, March, pp. 96-102.

4. Facility Location

- Factors affecting location decisions
- Locating a single facility

Readings:

- o "Location", Chapter 10 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Article

5. Facility Layout

- Layout types and performance
- Product and process layout designs - models/algorithms
- Application exercises in class

Readings:

- o "Process Layout", Chapter 7 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Article

6. Capacity Planning

- Capacity strategies and tools
- Basic forecasting methods
- Application exercises in class

Readings:

- o "Process Capacity", Chapters 6 in Operations Management, L.J. Krajewski & L.P. Ritzman.
- o Article

7. Forecasting

- Basic forecasting methods
- Application exercises in class

Readings:

- o "Forecasting", Chapter 13 in Operations Management, L.J. Krajewski & L.P. Ritzman.

- o Saffo, P. (2007), "Six Rules for Effective Forecasting", Harvard Business Review, July-August, pp. 122-131.

8. The Beer Game

- Business game in class where students are practically familiarized with the problems of inventory control and management.

Readings (common to sessions 8-10):

- o "Inventory Management", Resource Planning", and "Lean Systems", Chapters 15, 16, and 11 in Operations Management, L.J. Krajewski & L.P. Ritzman.

- o Abernathy, F.H. et al, (2000), "Control Your Inventory in a World of Lean Retailing", Harvard Business Review, Nov-Dec, pp. 169-176.

- o Liker, J.K. & Choi, T.Y. (2004), "Building Deep Supplier Relationships", Harvard Business Review, December, pp. 104-113.

9. Production Planning and Inventory Control I

- Deterministic models: Economic Order Quantity
- Materials Requirements Planning (MRP)
- Application exercises in class

10. Production Planning and Inventory Control II

- Just-In-Time – KANBAN
- Integrated exercise: Determining inventory strategy

11. Production Scheduling

- Operations Scheduling and Monitoring
- Application exercises in class

Readings:

- o "Scheduling", Chapter 17 in Operations Management, L.J. Krajewski & L.P. Ritzman.

- o Article

12. Statistical Quality Control and Total Quality Management – TQM

- Overview and introduction to Quality Management, Fundamental definitions
- Basics of Statistic Process Control (SPC)
- Application exercises in class

Readings:

- o "Process Performance and Quality", Chapter 5 in Operations Management, L.J. Krajewski & L.P. Ritzman.

- o Grant, R.M. et al (1994), "TQM's Challenge to Management Theory and Practice", Sloan Management Review, Winter, pp. 25-35.

**Recommended or Required Reading**

Krajewski, L.J. and L.P. Ritzman (2005). Operations Management: Strategy and Analysis, 7th Edition, Addison-Wesley, NY. (Newer and older editions, as well as any other Operations Management textbook cover all relevant issues).

Articles according to the above list.

### **Planned learning activities and teaching methods**

Lectures, exercises in class, case assignments and readings, video illustrations and Business Game. Cases and readings are discussed in class, case assignments are also handed in written and can be part of formal assessment.

### **Assessment methods assessment methods and criteria**

- Two case studies to accomplish in groups of two students (30% (2\*15%) of final grade).
- One individual reading note (10% of final grade).
- Final individual written exam (60% of final grade).

The first case study "Disney" consists of various documents that assess the students' understanding of fundamental introductory aspects of operations management and operations strategy. Students are asked to reflect on how an entertainment company and especially entertainment parks take into account different operational and strategic changes, and how operations interact with other functions of the enterprise.

The second case study "Fitness Plus Part A" (Krajewski & Ritzman, 2005, p. 272) is a capacity analysis and planning case. Students are faced with the problem of a fitness center that operates a number of training areas all which have different demand and different capacity. Students should calculate capacity of each area as well as total capacity for the center, and suggest how capacity should be balanced and what moves the center should make in view of maximizing utilization and customer satisfaction. The case requires calculation, reflection and use of capacity notions such as peak and effective capacity, capacity cushions and break-even analysis.

The reading note will be accomplished on the basis of one of the suggested articles (above list) selected by each student. Students can also propose a topic of their own choice. A template for the reading note will be distributed separately.

The final exam lasts for three hours and is composed of two parts. The first assesses through short questions and mini-cases the understanding of fundamental operations management concepts such as different operations paradigms (standardized and diversified mass production, lean production), product, service and process development concepts, procurement, location and layout issues, forecasting issues and quality management. The second part is based on problems and assesses the different quantitative aspects of the course focusing on inventory management, capacity planning and statistic process control. The above are indicative areas covered, each exam is tailored to the specific emphasis given in class and adapted to what was examined in the case studies

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## **2. Applied Software Engineering, Diomidis Spinellis**

6 ECTS credits, Advanced level

### **Communication with Lecturer**

dds@aueb.gr

**Objective of the course** (expected learning outcomes and competences to be acquired)

While most Information Systems and Computer Science courses traditionally deal with the development of new systems, in practice developers spend the largest part of their time in software life-cycle activities that follow the development phase. The objective of the course is to allow students to read and understand a system's software elements (code, structure, architecture). Having followed this course, students should be able to intelligently decide on how existing systems will be maintained, setup design and evolution strategies for legacy code, and prescribe the use of refactoring for dealing with architectural mismatches and low-quality code. An innovative aspect of the course involves the use of Open Source Software (OSS) in course examples and exercises. Through the study of OSS students will be able to see how non-trivial applications like the Apache Web server, the Postgres Relational Database Management System, the Jakarta Java servlet container and the Cocoon framework are structured.

**Prerequisites**

Proficiency in programming and software development

**Course contents**

Course outline: Course Introduction; Code as Part of the Software Development Process; The Open Source Landscape; Tackling Large Projects; Version Control; Declarative Drawing; Build Management; Code-Reading Tools; General Purpose Tools; Performance Measurement and Management; Inspection and Testing; Coding Standards and Conventions; Documentation; Maintainability.

**Recommended reading**

Diomidis Spinellis. Code Reading: The Open Source Perspective. Addison-Wesley, 2003.  
Diomidis Spinellis. Code Quality: The Open Source Perspective. Addison-Wesley, 2006.  
Martin Fowler. Refactoring: Improving the Design of Existing Code. Addison-Wesley, 2000.  
Michael Feathers. Working Effectively with Legacy Code. Prentice-Hall, Englewood Cliffs, NJ, 2005.

**Mode of delivery**

Lectures, labwork, and coursework  
Assessment methods  
Coursework

**Language of instruction**

Greek & English

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**DEPARTMENT OF BUSINESS ADMINISTRATION****FALL SEMESTER**

**1. Advertising and Communication Management,**  
6 ECTS credits, Advanced Level

### **Course Objective**

The aim of this course is to examine the promotional function and the role of advertising for contemporary companies. The course focuses on the promotional elements in the marketing programs of domestic and foreign companies. Students will be introduced to the concept of integrated marketing communications (IMC) and consider how it evolves. Also, the course examines how various marketing and promotional elements must be coordinated to communicate effectively. Different IMC models are examined in addition with the steps in developing a marketing communication program.

### **Prerequisites**

Two marketing courses, at least an introductory one.

### **Course Content**

Integrated marketing communication  
Setting communication objectives  
Advertising Planning & Decision Making  
Sales Promotion, Direct marketing & Personal Selling  
Public relations & Corporate Advertising  
Creative strategy  
Media Planning-Strategy & Tactics Media Evaluation  
Advertising Ethics  
Global Advertising  
Advertising and the law

### **Recommended Reading Material**

R.White Advertising 4th ed. Mc Graw Hill  
Belch & Belch Advertising & Promotion 6th ed. Mc Graw Hill

### **Teaching Methods**

Lectures, Case studies, Video & Multimedia materials

### **Assessment Methods**

70% written assignment, 30% written exams

## **2. Financial Management**

George Kouretas  
6 ECTS credits  
Level: Intermediate

### **Course outline**

This module examines various items in the area of Corporate Finance. For that reason it is divided into 2 major groups:

- a) The first group includes the most important methods concerning Investment Appraisal.
- b) The second group is concerned with Financing Decisions.



## Reading Material

The required text for the course is:

- Brigham and Erhardt. Financial Management - Theory and Practice.
- DRYDEN PRESS HARCOURT

Some highly recommended texts are the following:

- Brealey, A., Myers, C., (1997): Principles of Corporate Finance, Mc – Graw Hill, New York.
- Lumbly, S., (1996): Investment Appraisal and Financing Decisions, Chapman and Hall.

## Components of the Course

The major components of the course are the following:

- Introduction to Investment Appraisal
- Methods and Criteria of Investment Appraisal
- Net Cash Flow Analysis
- Investment Appraisal and Inflation
- Risk Analysis
- Capital Markets
- Bond and Share Valuations
- Cost of Capital
- Capital Structure
- Dividend Policy
- Portfolio Considerations

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## 3. Business Policy and Strategy, Helen Salavou

6 ECTS credits

### Communication with Lecturer

e-mail: esalav@aueb.gr

Tel: +30 210 8203 425

### Rationale for the Course

This course will provide techniques to effectively manage the process of strategizing. The aim is to help students understand how to build a strategically responsive organization by tuning systems, structures and people to strategy, and how.

### Brief Outline

Strategic management deals with the fundamental problems facing top managers:

1. How to analyze the external and internal environment of the company
2. How to direct the company into the future
3. How to make a strategic choice, given a number of alternative strategic options (choices include: in which areas should we diversify, in which products/services should we expand, how we are going to implement this expansion, are we going to acquire, merge, form an alliance with another business)
4. How to build and sustain competitive advantage

5. What type of structure, systems, and people does a company need to successfully implement a chosen strategy?
6. How to strategically respond in the global environment

### **Learning Objectives**

As a result of taking this course, the student should be able to:

1. Conduct an environmental analysis of a given organization or industrial sector.
2. Conduct a competitor analysis.
3. Conduct a resources analysis and identify core competencies and the elements of a firm's competitive advantage.
4. Identify and assess potential strategic choices.
5. Identify and evaluate strategic alternatives for development and select the most appropriate to implement.
6. Apply all the above in a real-world competitive setting.

### **Pre-requisite Knowledge**

The knowledge acquired in previous courses attended (e.g. marketing, production management, human resources management, operational and financial management), will provide useful insights in better understanding the strategy course.

### **Textbook**

Hill, C.W.L. and G.R. Jones, 'Strategic Management: An Integrated Approach', Houghton Mifflin, 2008, eight edition ISBN-13: 978 0 618 89469 7 ISBN: 0618 89469 1

### **How Will the Course Evolve**

This is a teaching-reading course. You are going to attend 3-4 lectures (about 10 hours) and respond to 2 written assignments (see Appendix II).

### **How You Can Enroll in the Course**

You can send an e-mail (esalav@aueb.gr) stating your full name and that you decided to take this course.

### **Evaluation**

Your final grade will depend on the following:

Quality of Written Reports to case studies	60%
Final Examination	40%

Exams will take place in the period between mid January-Mid February. Therefore students wishing to go back to their countries before or shortly after Christmas are advised not to take this course.

Final examination will be an open book based on a short case study and/or questions (i.e., multiple-choice).

### **Appendices**

APPENDIX I. THE INSTRUCTOR

Helen Salavou holds a BSc in Business Administration, an MBA and a PhD from the Athens University of Economics and Business (AUEB). She is currently an Assistant Professor at the Department of Business Administration of AUEB and member of the laboratories of 'business strategy' and 'strategy and entrepreneurship' at the AUEB.

Her main research interests involve innovation, entrepreneurship and small business research. She has published in several international journals including: Journal of Business Research, European Journal of Marketing, European Business Review, Management Decision, European Journal of Innovation Management, Creativity and Innovation Management. She has authored a monograph, co-authored a monograph and published chapters in edited volumes. She has also presented her work in international conferences, such as EMAC (European Marketing Academy) and EIASM (European Institute for Advanced Studies in Management).

She has participated in various research projects both at a national and international level since 1997. She has also taught undergraduate and postgraduate courses, such as management, strategy and entrepreneurship at the AUEB, Agricultural University of Athens and Hellenic Management Association (EEDE). She also possesses consulting experience with public and private organizations in Greece.

#### Appendix II. Case Assignments

Regarding the case assignments you are required to:

- a. Read the material (case study) on your own and understand it.
- b. Read the relevant chapters from the book and/or additional material you may wish to find on your own.
- c. Link the questions (see below) to the textbook material and produce a short report responding to each of the questions posed (you will receive specific guidelines).

In addition, there are specific deadlines you have to meet (see Table 1).

TABLE 1.INDIVIDUAL ASSIGNMENTS (SEE APPENDIX II)

Case Assignments	See Textbook
1. Wal-Mart Stores, Inc (2002)	Chapters 3,4
2. The New Corporation (2001)	Chapters 8,9,10,13

#### Important Notes:

All reports will be graded on a 1-10 scale (10 being the perfect mark). Delayed reports will not receive a grade.

Plagiarism is forbidden. Plagiarism is defined as using 'a piece of writing that has been copied from someone else and is presented as being your own work'. Of course you are allowed to use any sources of data you want, cooperate with students working on the same assignment, however you have to present your arguments in your own words. Plagiarizing assignments will get a zero mark.

#### Discussion Questions for Case Assignment 1: Wal-Mart Stores, Inc (2002)

1. To what extent is Wal-Mart's (WM) performance attributable to industry attractiveness and to what extent to competitive advantage?
2. Identify distinctive resources and capabilities in the internal environment of WM.

3. To what extent is WM's competitive advantage sustainable? Why have other retailers had limited success in imitating WM's strategy and duplicating its competitive advantage?

Discussion Questions for Case Assignment 2: News Corporation (2001)

1. Please identify the corporate-level strategies TNC implemented throughout the period 1980-2000.
2. Please evaluate how these strategies (see question 1) were associated with the SWOT analysis of TNC.
3. How did TNC corporate-level strategies add value at the business-level?
4. Please propose and evaluate two corporate-level strategies, which should be adopted by TNC for the period 2001-06.

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#### **4. Money and Capital Markets**, Konstandinos Kassimatis

6 ECTS Credits, Level: Advanced

##### **Course Outline**

Analysis of the nature and operations of modern money and capital markets. How the markets work and what instruments are used. The money markets, the bond markets, the equity markets and the derivatives markets are covered.

##### **Evaluation Methods**

Final written exam - 100% of overall assessment (late January or early February, according to the official exams time-table of the University).

##### **Reading Material**

- Bodie-Kane-Marcus: Essentials of Investments (Irwin/McGraw-Hill, 1998)
- Brealey-Myers: Principles of Corporate Finance
- Blake D.: Financial Market Analysis (Wiley, 2000)
- Bodie-Kane-Marcus: Investments (Irwin, 1996)
- Moses-Cheney: Investments (West Publishing Co., 1989)
- Reilly-Brown: Investment Analysis and Portfolio Management (Dryden)
- Fabozzi F.J.: Bond Markets, Analysis and Strategies (Prentice Hall)
- Kolb R.W.: Futures, Options and Swaps (Blackwell, 1999)

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#### **5. Engineering Logistics**, Paraschos Maniatis

6 ECTS Credits

##### **Communication with Lecturer**

Paraschos Maniatis, Mobile Phone: 6942487212, E-mail address: pman@aueb.gr

##### **Suggested Reading Material**

Handbook of Logistics & Distribution Management 4th Edition. Edited by John L. Gattorna – Gower Publishing Company, 1990

Logistics and Supply Chain Management.Strategies for Reducing Costs and Improving Services.  
Martin Christopher. Pitman Publishing 1992

Articles and Material to be distributed

### **Course Description**

An introduction to the operations aspects of logistics combined with an overview of Supply Chain Management. Topics will include purchasing, vendor relations, inventory strategies and control, warehousing, material handling, layout planning, packaging, and transportation, combined under supply chain management philosophy. The course will be taught through lectures, problem sets and case studies.

### **Course Objectives**

To enable the student to describe, understand, analyse and recommend enhancements to the purchase, logistics and distribution functions within a manufacturing or service environment.

To provide the student with an overview of the larger issues associated with Supply Chain Management.

### **Learning Outcomes**

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

- Demonstrate systems thinking capacity in the logistics environment.
- Be able to provide input to, understand and take action on reports generated by the various functions associated with purchasing, logistics and distribution.
- Be able to generate and analyse simple reports in the areas of forecasting, purchasing, inventory management, transportation and warehousing.
- Be able to articulate a solid understanding of Supply Chain Management including vendor selection and vendor relations strategies and techniques.
- Be able to assemble, review and recommend action plans for complex logistics and Supply Chain Systems.

### **Course Methodology**

We will be using a combination of lecture, case studies, class discussions, class exercises and student presentations to cover the required material.

### **Methods of Assessment**

- |  |                |
|--|----------------|
| • Written test at the end of the semester            | 50%            |
| • Written Answers to Case Studies in Electronic Form | 30%            |
| • Oral Presentation of the Case Studies              | 20% (Required) |
| • Class participation                                | 10%            |

All class members will be graded on a curve based upon overall performance in the class. Late papers are not encouraged and will only be accepted with prior approval by the instructor. Grades will be affected by timeliness of the work.

## Attendance Policy

Students are expected to attend all class sessions. Circumstances that prevent attendance will be honoured up to two instances. Absences in excess of three times may result in an incomplete grade for the course. Contact the instructor when a special situation arises. All absences require that the instructor be informed in advance.

## Class Schedule

Week	Topic/Activity
Week 1:	Introduction, Course Overview, Logistics of the course
Week 2	Logistics Integration, Customer Service
Week 3:	Supply Chain Relationships, Global Logistics
Week 4	Information Systems, Forecasting
Week 5:	Inventory Strategy, Inventory Management
Week 6:	Transportation Infrastructure, Transportation Regulation
Week 7:	Transportation Management, Warehouse Management
Week 8:	Material Handling, Packaging
Week 9:	Layout Planning
Week 10:	Logistics Positioning, Integration Theory
Week 11:	Planning and Design Methodology, Planning and Design Techniques
Week 12:	Organization, Planning, Costing and Pricing
Week 13:	Case Studies Presentation

LAST DAY OF CLASSES: To be announced

EXAMINATION: To be announced

To: Engineering Logistics Class  
From: Paraschos Maniatis  
Subject: Term paper evaluation criteria (each student has to perform 5 case studies taken from the list stated below and assigned by the instructor in the beginning of the semester)

The full text description of all the cases separately could be found in the e-class section in the website of the University under the name of the course "ENGINEERING LOGISTICS"

The case studies answers are an important part of the Logistics course requirements. Therefore, it is important that you think about your answers and its ground rules early in the semester.

The specific subject of the cases is expected to include several of the logistics topics discussed in class and in the book. The subject should be selected in terms of viability, significant issues to be addressed and what is required to implement the topic such as manpower, materials, packaging, inventory and so on. The subject should be selected by the instructor fitting one of personal interest to you, which will make the project far more enjoyable.

You should support your subject with clear references to experts within the field of choice. You are free to apply personal experience to the subject but it should be well supported with outside justification.

The length of the answers in no case will be less than the number of the words of the actual case given to you. This is why the cases are given to you in an electronic form, so that you'll be able to word count them. Your answers will be returned in electronic form and must also include a bibliography of all reference material used in the formulation of the answers.

To: Engineering Logistics Class  
From: Paraschos Maniatis  
Subject: Oral Presentation

The oral presentation accounts for 20% of your final grade and therefore is a very important component of the required class work. The purpose here is to outline the expectations I have of you when giving your presentation. As, mostly, business school students, it is expected that you are able to think logically and communicate verbally in an accurate and succinct manner. One of the objectives of this oral presentation is to give you an opportunity to refine those skills. The ability to make straightforward and logical presentations is critical for your success. Although public speaking can cause a certain amount of stress, this environment is an opportunity conducive to honing these skills and must not be missed. It is also an opportunity for you to convince your fellow students how much you have learned in your study program to date. Your material should be thoroughly researched and presented in a convincing manner. After all, upon completion of this research, you are expected to be the expert in the subject matter. The structure of your presentation should be logical, easy to follow and relatively structured. Please view this as a learning opportunity versus a task that must be endured.

#### Oral Presentation Structure/Outline

The oral presentation is individually performed and should be a maximum of fifteen minutes in length. Each member will be responsible for his/her own answers of the presentation and should cover it thoroughly. Allow adequate time for a question and discussion session at the end of the presentation. Please try to stay within these time constraints.

#### Panel Presentation Grading

Each student will earn his own grade, which will be based on the presentation itself and responses to questions and the impromptu discussion that follows.

Each individual clear, concise, accurate, logical and easy to understand?

a fundamental understanding of the topic covered before diving into the more complicated issues surrounding the subject?

Does the presentation flow not only for each individual but also from one presenter to another?

Do the visual aids support what is being discussed at the time?

#### A List of Case Studies

1. Nittany Systems Electronics and Missiles Group
2. Macklin, Ltd.
3. No-Tell Computer Parts
4. Old British Fish "N" Chips, Ltd.
5. Athletic Corner
6. Peninsula Point, Inc.

7. Sea-Tac Distributing Company
8. Bellwether Corporation
9. OK Jeans
10. Trump Railcar Corporation
11. Consolidated Motors
12. National Appliances, Inc.
13. Specialty Metals Company
14. Nittany Products
15. Radical Systems
16. Bart Dental
17. Roll Free Tire Company
18. Hanover Pharmaceuticals, Inc.
19. New England Transportation, Inc.
20. Savannah Steel Corporation
21. J & Roofing
22. Squire Auto Parts Company
23. Atlantic Pharmaceuticals (A)
24. Atlantic Pharmaceuticals (B)
25. Trexler Furniture manufacturing Company
26. Veltri Motors
27. Lippincott Computer
28. Veil Chemical
29. Minifix, Inc.

**6. Entrepreneurship** , Helen Salavou  
6 ECTS credits

**Communication with Lecturer**

e-mail: esalav@aueb.gr  
Tel: +30 210 8203 425

**COURSE RATIONALE**

This course introduces the nature of entrepreneurship. It helps students to successfully develop viable business ideas. This is a teaching-mentoring course. You are going to write and present business plans based on teamwork.

**BRIEF SYLLABUS**

Entrepreneurship is both a way of thinking and of doing. It deals with “creating something from nothing”. The course cultivates an entrepreneurial mindset and focuses on skills necessary for writing a comprehensive business plan.

**LEARNING OBJECTIVES**

As a result of taking this course, the students should be able to:  
entrepreneurship  
professional career choice

- understand
- successfully



## PRE-REQUISITE KNOWLEDGE

This course synthesizes concepts and knowledge from various courses at business schools. Only students, who have attended marketing and/or management courses, are allowed to follow this course.

## READING MATERIAL

Together with a list of recommended references, the following book is required:  
Peters M., Entrepreneurship, 5th Edition, McGraw Hill, 2002

Hisrich R. et al.

## COURSE EVALUATION

Your final grade will depend on the following:

Written exams 20%

Business plan 50%

Business plan presentation 30%

Written exams will take place in the period between January - February. Students wishing to go back to their countries before or shortly after Christmas are advised not to take this course.

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## SPRING SEMESTER

### 1. International Marketing Management,

6 ECTS Credits, Type: Elective, Level: Advanced

#### Course Objective

This course offers students a practical understanding of the role of marketing in the achievements of corporate goals and the opportunity to gain an appreciation of the different applications of marketing in consumer, and industrial international markets. Also, it provides students with an understanding of both theory and practice of international and export marketing as well as with the ability to apply this understanding to real and simulated situations.

#### Prerequisites

Three marketing courses

#### Course Content

International Trade.

Overseas and European environments: cultural, political and economic.

Information gathering and marketing information systems for international marketing decision-making.

Methods of market entrance.

International marketing mix.(Product, Price, Promotion, Place)

Logistics, subsidiaries, agents, importers and intermediaries.

Globalization

### **Recommended Reading Material**

Cateora International Marketing Management 10th ed. Mc Graw Hill  
Rugman & Hodgetts International Business 3rd ed. Prentice Hall

### **Teaching Methods**

Lectures, Case studies, Video & Multimedia staff

### **Assessment Methods**

70% written assignment, 30% written exams

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## **2. Money and Capital Markets, Konstantinos Kassimatis**

6 ECTS Credits, Level: Advanced

### **Course Outline**

Analysis of the nature and operations of modern money and capital markets. How the markets work and what instruments are used. The money markets, the bond markets, the equity markets and the derivatives markets are covered.

### **Evaluation Methods**

Final written exam - 100% of overall assessment (late January or early February, according to the official exams time-table of the University).

### **Reading Material**

Bodie-Kane-Marcus: Essentials of Investments (Irwin/McGraw-Hill, 1998)  
Brealey-Myers: Principles of Corporate Finance  
Blake D.: Financial Market Analysis (Wiley, 2000)  
Bodie-Kane-Marcus: Investments (Irwin, 1996)  
Moses-Cheney: Investments (West Publishing Co., 1989)  
Reilly-Brown: Investment Analysis and Portfolio Management (Dryden)  
Fabozzi F.J.: Bond Markets, Analysis and Strategies (Prentice Hall)  
Kolb R.W.: Futures, Options and Swaps (Blackwell, 1999)

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## **3. Financial Management,**

6 ECTS credits, Level: Intermediate

### **Course Outline**

This module examines various items in the area of Corporate Finance. For that reason it is divided into 2 major groups:

- The first group includes the most important methods concerning Investment Appraisal.
- The second group is concerned with Financing Decisions.

### **Reading Material**

The required text for the course is:

- Brigham and Erhardt. Financial Management - Theory and Practice.  
DRYDEN PRESS HARCOURT

Some highly recommended texts are the following:

- Brealey, A., Myers, C., (1997): Principles of Corporate Finance, Mc – Graw Hill, New York.
- Lumbly, S., (1996): Investment Appraisal and Financing Decisions, Chapman and Hall.

### **Course Components**

The major components of the course are the following:

- Introduction to Investment Appraisal
- Methods and Criteria of Investment Appraisal
- Net Cash Flow Analysis
- Investment Appraisal and Inflation
- Risk Analysis
- Capital Markets
- Bond and Share Valuations
- Cost of Capital
- Capital Structure
- Dividend Policy
- Portfolio Considerations

## DEPARTMENT OF ACCOUNTING AND FINANCE

### FALL SEMESTER

#### **1. Cost and Management Accounting**, Efthimios Demirakos

6 ECTS credits, Level: Intermediate progressing to advanced

#### **Contact Information**

Efthimios Demirakos, Assistant Professor

e-mail address: [demirakos@aueb.gr](mailto:demirakos@aueb.gr), tel.: 210-8203 442

#### **Course Objectives – Content**

Learning Objectives

Upon successful completion of the course, the students will be able to understand the:

1. content of cost accounting,
2. concepts and categories of cost,
3. determinants of production cost (raw materials, direct labor and overheads),
4. costing systems (traditional costing and activity-based costing),
5. costing methods (job order costing and process costing),
6. costing techniques (absorption costing, variable costing and standard costing),
7. allocation and reallocation of overheads,
8. cost-volume-profit analysis, and
9. costing of joint products and by-products.

#### Course Structure

The structure of the course includes the following sections:

1. Product Costing Systems: Concepts and Design Issues (Chapter 2)
2. Cost Accumulation for Job Shop and Batch Production Operations (Chapter 3)
3. Activity-Based Costing Systems (Chapter 4)
4. Process Costing Systems (Chapter 8)
5. Joint Process Costing (Chapter 9)
6. Managing and Allocating Support-Service Costs (Chapter 10)
7. Financial and Cost-Volume-Profit Models (Chapter 12)
8. Standard Costing, Variance Analysis and Kaizen Costing (Chapter 16)

#### **Course Assessment**

Final two-hour written examination comprising exercises and case studies.

#### **Bibliography**

Course Textbook

Hilton, Maher and Selto (2008), "Cost Management: Strategies for Business Decisions", Fourth Edition, McGraw-Hill. (You may borrow copies of the book from the school's library).

#### **2. Financial Statement Analysis (Reading course)**, Georgia Siougle

6 ECTS credits

### Contact Information

Georgia Siougle, Associate Professor  
e-mail address: [gsiougle@aueb.gr](mailto:gsiougle@aueb.gr), tel. : 210-8203 145

### Course Content

This course introduces and develops a framework for business analysis and valuation using financial statement data. Four key components of effective financial statement analysis are discussed:

- Business Strategy Analysis
- Accounting Analysis
- Financial Analysis
- Prospective Analysis

Cases are used in course projects and will be assigned to student teams.

### Recommended Reading Material

Business Analysis and Valuation, By Palepu, Healy and Bernard

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## SPRING SEMESTER

### 1. Behavioral Finance (Reading Course), Spyros Spyrou 6 ECTS credits

#### Contact Information

Spyros Spyrou, Associate Professor  
e-mail address: [sspyrou@aueb.gr](mailto:sspyrou@aueb.gr), tel.: 210-8203 169

#### Course Content / Objectives

Traditional economics and finance is developed on the assumption of a rational utility maximizing economic agent. Recent empirical evidence, however, suggests that real people behave differently than assumed. This module reviews the literature on cognitive psychology as regards to human and investor behaviour and contrasts this with the behaviour that is expected from traditional models. We discuss Prospect Theory (PT), i.e. a theory alternative to Expected Utility Theory (EUT), and show that many empirical phenomena that were considered as 'anomalies' by traditional finance can be explained within this framework. The module also discusses empirical findings on various related issues such as herding behaviour, measures of herding, investor overreaction and under-reaction, measurement of investor sentiment, mental accounting, overconfidence, the house-money effect, the dividend puzzle, the equity premium puzzle, the closed-end fund puzzle, among others.

The key concepts that will be analyzed include:

- The Limits of arbitrage
- Prospect theory
- Cognitive heuristics and biases

- Overreaction and Under-reaction
- Empirical Puzzles and Behavioral Explanations
- Investor Biases
- Herding Behavior in Financial Markets
- Investor Sentiment: Measurement & Empirical Evidence

### **Assessment**

One 2,500 to 3,000 word essay and final exams

### **Bibliography**

#### A. Textbooks

- Shefrin, H. (2002). *Beyond greed and fear: Understanding behavioral finance and the psychology of investing*, Oxford University Press
- Kahneman, D., Slovic, P. and Tversky, A. (eds.) (1982), *Judgment under Uncertainty: Heuristics and Biases*, Cambridge University Press, New York.
- Kahneman, D. and Tversky, A. (eds.) (2000), *Choices, Values, and Frames*, Russell Sage Foundation and Cambridge University Press, New York.
- Barberis, Nicholas, and Richard Thaler, 2003. "A survey of behavioral finance." in G. Constantinides, M. Harris, and R. Stulz (editors) *Handbook of the Economics of Finance* North-Holland, Amsterdam.

#### B. Articles

- Antoniou, A., Galariotis, E. and Spyrou, S., (2006), Short-term contrarian strategies in the London Stock Exchange: Are they profitable? Which factors affect them?, *Journal of Business Finance & Accounting*, 33, 839-867
- Benartzi, S. and Thaler, R., (2001), Naïve diversification strategies in defined contribution savings plans, *American Economic Review*, 91, 79-98.
- De Bondt, W., (1993), Betting on trends: Intuitive forecasts of financial risk and return, *International Journal of Forecasting*, 9, 355-371.
- Carhart, M., (1997), On persistence in mutual fund performance, *Journal of Finance*, 1, 57-82.
- De Bondt, W.F.M., and Thaler, R.H. (1985), Does the Stock Market Overreact? *Journal of Finance*, 40, 793-808.
- Kahneman, D. and Tversky, A., (1984), Choices, Values and Frames, *American Psychologist*, 39, 341-50.
- Kahneman, D. and A. Tversky, (1979) "Prospect Theory: An Analysis of Decision Making Under Risk," *Econometrica*
- Murstein, B. I., (2003), Regression to the mean: One of the most neglected but important concepts in the stock market, *Journal of Behavioral Finance*, 4, 234-237.
- Porter, D. P., and Smith, V., (2003), Stock market bubbles in the laboratory, *Journal of Behavioral Finance*, 4, 7-21.
- Ritter, J. R. (2003), Behavioral finance, *Pacific-Basin Finance Journal*, 11, 429-437.
- Shafir, E., Diamond, P. and Tversky, A., (1997), Money Illusion, *Quarterly Journal of Economics* 112, 341-374.
- Shefrin, H. & Statman, M., (2003), The contributions of Daniel Kahneman and Amos Tversky, *The Journal of Behavioral Finance*, 4, 54-58.

## **2. Computational Finance and Econometrics**, Stylianos Bekiros

6 ECTS credits, Level: Advanced

### **Contact Information**

Stelios Bekiros

Assistant Professor

e-mail address: [bekiros@aueb.gr](mailto:bekiros@aueb.gr), tel.: 210-8203 453

### **Description**

The aim of this course is to provide the students with knowledge of modern computational/econometric techniques in estimating and forecasting financial asset returns and risk (volatility). The course discusses topics such as MCLRM, heteroscedasticity, multicollinearity, autocorrelation, nonnormality, ARIMA/VAR modeling, nonstationarity, cointegration, ARCH/GARCH models, Value-at-Risk.

### **Prerequisites/Curriculum Position**

Excellent background in Matrix Algebra, Multivariate Statistics, Advanced Econometrics and Economic/Financial Mathematics. Students should have computing skills.

### **Format**

You are going to attend a number of long lectures (reading course) and respond to individual and/or team assignment(s).

### **Assessment**

Individual/team assignment(s) and a final exam.

### **Course material**

*Recommended bibliography:*

- [1]. Watsham, T.J., & Paramore, K., (2001). *"Quantitative Methods in Finance"*, Thomson Learning, 1st / 2nd Eds
- [2]. Rachev, S., Mittnik, S., Fabozzi, F., Focardi, S. and Jasic. T., (2007). *"Financial Econometrics"*, Wiley
- [3]. Jorion, P. (2001). *"Value at Risk"*, McGraw Hill, 2nd Eds (*optional*)

## DEPARTMENT OF MARKETING AND COMMUNICATION

### FALL SEMESTER

#### 1.Human Resource Management

Leda Panayotopoulou

6 ECTS credits

Level: Intermediate

Contact details:

Office: 2<sup>nd</sup> Trias str., 5<sup>th</sup> floor (room 510)

Tel. 210 8203 544

E-mail: [ledapan@aueb.gr](mailto:ledapan@aueb.gr)

#### **Aims**

This course aims at familiarizing students with the theoretical background of Human Resource Management. The subjects covered throughout the lectures will introduce students to the current way of managing employees in modern organizations. More specifically, after the completion of the course, the participants will be able to understand:

- The important role of HRM in supporting organizational strategy in the modern firm.
- HRM practices and current trends.
- Issues in international HRM

#### **Course Outline**

The course covers the following areas of HRM:

- The Nature of HRM - Strategic HRM
- Staffing: HR planning, Recruitment, Selection
- Performance Management
- Learning and Development
- Rewards and Incentives
- International Dimension

The main textbook of the course is: ***Human Resource Management***, by Torrington, Hall & Taylor, Prentice Hall,

#### **Teaching Method**

- Interactive lecture enriched with case studies and group discussions.

#### **Assessment of the Course**

- Class participation
- Group assignment
- Written exam

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***



## **2.Global Marketing**

D. Skarmeas

6 ECTS credits

Level: Advanced

### **Contact Details**

E-mail: [dskarmeas@aueb.gr](mailto:dskarmeas@aueb.gr)

### **Prerequisites**

Introduction to Marketing

### **Objectives**

On completion of this module students will be able to:

- ✓ exhibit an appreciation of the issues and complexities facing business when moving into global markets;
- ✓ apply techniques for the analysis of environmental and competitive forces in a global setting;
- ✓ demonstrate an understanding of globalization and the internationalization process of a firm and how they impact on market(s) and entry mode(s) selection;
- ✓ show an appreciation of the value of global market intelligence, key data sources and issues of consistency in internationally published data;
- ✓ exhibit an appreciation of the importance of understanding different international culture traits, noting the implication for business;
- ✓ critically appraise the relevance of key academic literature within global marketing;
- ✓ exhibit high quality written and oral communication skills.

### **Course Outline**

- ✓ Globalization
- ✓ Internationalization Process
- ✓ Global Marketing Environment
- ✓ Global Market Segmentation
- ✓ Global Market Selection
- ✓ Global Product Strategy
- ✓ Global Promotion Strategy
- ✓ Global Distribution Strategy
- ✓ Global Pricing Strategy
- ✓ Case studies in Global Marketing

### **Assessment Methods**

Individual and group assignments (40%) and final exams (60%).

## Reading List

### *Core reading:*

Hollensen, S. (2011). *Global Marketing: A Decision-Oriented Approach*, 5th edition, FT Prentice Hall.

### *Supplementary reading:*

Keegan, W.J. and Green, M.C. (2008). *Global Marketing*, 5<sup>th</sup> edition, Pearson Prentice Hall.

Sarathy, R., Terpstra, V. and Russow (2006). *International Marketing*, 9<sup>th</sup> edition Dryden Press.

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***

## **3.Retail Sales Promotions**

**Paris Argouslidis**

**6 ECTS credits**

### Contact Details

E-mail: [pargousl@aueb.gr](mailto:pargousl@aueb.gr)

### **Course Description and Content**

The present course includes 26 2-hour lectures on sales promotions in the sector of retailing. Such promotions can be initiated by manufacturers of consumer products, by retailers or by both of them. The topics to be covered are as follows:

- General principals of retail sales promotions.
- Alternative methods of retail promotions (e.g., price discounts; bonus packs; price bundling; multiple unit pricing; simple coupons; cross-coupons; samples; reward schemes.
- General conditions leading to retail sales promotion campaigns.
- Design and implementation of retail sales promotion campaigns.
- Issues relating to a product's post-promotion period (e.g. what should manufacturers and retailers expect by the end of a product's promotional period?).

### **Course Delivery**

Lectures will be based on findings from empirical research published in premier journal outlets, on practical examples and on illustrations of sales promotion programs in retail stores. During lectures

students will be asked to actively participate in the discussion. Students will get electronic access to the theoretical material that will be covered during lectures. Specifically, before each lecture the corresponding slides will be uploaded on e-class and students will have register in order to get access and print them out. It is important to note, however, that class attendance is particularly important because it will include additional material (e.g. cases studies, visual illustrations) that will not appear on e-class.

### **Course Assessment**

The course will be evaluated as follows.

First, students will be asked to deliver a power point presentation regarding the design and the implementation of a retail sales promotion campaign. Depending on class size, the assignment will be a group or an individual one (weigh: 30% of the final mark).

Second, students will sit a written exam in the examination period of January-February 2015 (weigh: 70% of the final mark).

### **Key Benefits**

Students attending this course will likely get a job with a manufacturer of consumer goods (e.g. grocery or durables) or with a domestic or global retailer. It is, therefore, of particular importance to acquire knowledge about retail sales promotion techniques. By combining empirical evidence with practical illustrations and case studies, this course aims at offering students a thorough understanding of the nature, content and context of retail sales promotions. In particular, by completion of the course, students will be able to know:

1. general principals of sales promotions,
2. alternative methods of sales promotions,
3. conditions justifying a sales promotions campaign,
4. issues relating to the design, implementation, and post-promotion evaluation of sales promotion campaigns,
5. price promotions for perishable grocery products,
6. price promotions for more highly-priced durable products.

## Key References

Ailawadi K.L., Gedenk K., Lutzky, C., and Neslin S.A. (2007), 'Decomposition of the sales impact of promotion-induced stockpiling', *Journal of Marketing*, 44 (August), pp. 450-467.

Chen, H.A., Marmorstein, H., Tsiros, M., and Rao, A.R., (2012), 'When more is less: the impact of base value neglect on consumer preferences for bonus packs over price discounts', *Journal of Marketing*, 76 (July), pp. 64-77.

DelVecchio D., Krishnan S., and Smith D.C. (2007), 'Cents or percent? The effects of promotion framing on price expectations and choice', *Journal of Marketing*, 71 (July), pp. 158-170.

Laran, J. and Tsiros, M. (2013), 'An investigation of the effectiveness of uncertainty in marketing promotions involving free-gifts', *Journal of Marketing*, 77 (March), pp. 112-123.

Liu Y. (2007), 'The long-term impact of loyalty programs on consumer purchase behaviour and loyalty', *Journal of Marketing*, 71 (October), pp. 19-35.

Ramanathan S. And Dhar S.K. (2010), 'The effect of sales promotions on the size and the composition of the shopping basket: regulatory compatibility from the framing and temporal restrictions', *Journal of Marketing Research*, 47 (June), pp. 542-552.

Tsiros M. and Heilman C. M. (2005), 'The effects of expiration dates and perceived risk on purchasing behaviour in grocery store perishable categories', *Journal of Marketing*, 69 (April), pp. 114-129.

Tsiros M. and Hardesty D. M. (2010), 'Ending a price promotion: retracting it on one step or phasing it out gradually', *Journal of Marketing*, 74 (January), pp. 49-64.

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***

## **SPRING SEMESTER**

### **1. Cross-Cultural Communication,**

**Eleni Apospori**

6 ECTS credits

Level: Advanced

#### **Contact Details**

E-mail: apospori@aueb.gr

Tel: 210-8203 141

#### **Course Aim**

The overall aim of this course is to educate students so that they develop basic competences in cross-cultural communication in general and in organizational environment in particular.

#### **Course Content**

Topics that will be covered:

##### **1. Introduction to Culture**

###### **Aim**

To analyse the basic dimensions/concepts of culture in order to become clear the complexity and multi-dimensionality of culture

###### **1.1 Basic Concepts**

- Elements of culture
  - Artefacts
  - Norms and Sanctions
  - Values and Beliefs
- Levels of culture
  - From small groups to supranational groups

##### **2. Introduction to Communication**

###### **Aim**

To analyse various approaches to and concepts of communication in order to become clear the complexity and multi-dimensionality of communication and its mechanisms

## 2.1 Basic concepts

- Problems in Communication
- Noise in Communication
- Communication – Semiotics

## 2.2 The Five Rules of Communication

### 2.3 Definition of Cross – Cultural Communication

## **3. The cultural context of communication**

### **Aim**

To present, analyse and compare the wide spectra of cultural characteristics across the globe.

### 3.1 Basic concepts

- Individualism/collectivism
- High/low context
- Small/large power distance
- Low/high uncertainty avoidance

## **4. The Perceptual context of communication**

### **Aim**

To list and discuss the stages of human information processing and familiarize students with cultural differences in perception, stereotypes, ethnocentrism and racism

### 4.1 Basic concepts

- Culture and cognition
- Stereotyping
- Ethnocentrism
- Racism
- Ethnocentrism and Communication in the workplace
- 

## **5. Verbal and Non-verbal codes in Communication**

### **Aim**

To familiarize the students with the wide varieties of verbal and non-verbal codes of communication across culture

### 5.1 Basic concepts

- The relationship between language and culture
- Cross-cultural communication styles
- The relationship between verbal and non-verbal codes

## **6. Developing Intercultural relationships**

### **Aim**

To help students command their intercultural relationships

#### 6.1 Basic concepts

- Communication and Uncertainty
- Anxiety and uncertainty management
- Uncertainty reduction
- Empathy and similarity

## **7. Intercultural conflict**

### **Aim**

To familiarize student with the levels and styles of conflict in cross cultural communication

#### 7.1 Basic concepts

- Definition of intercultural conflict
- Models of intercultural conversation
  - Conflict resolution in various cultures

## **8. Intercultural communication in Organizations**

### **Aim**

To discuss how dimensions of the cultural context affect organizations across cultures and to identify how the perceptual context can influence doing business with other cultures

#### 8.1 Basic concepts

- Intercultural management
- Clashing cultural concepts on the job
- Doing business in various cultures across the Globe

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***

## 2.Change Management

Maria Vakola,

6 ECTS credits

Level: Advanced

### **Contact Details**

E-mail: mvakola@aueb.gr

Tel: 210-8203 177

### **General Aim and Rationale**

The concept of change is not a new one. Indeed change has always been recognized as necessary and inherent to all aspects of life. However, the last decade has, for most organizations, been a time of totally unprecedented and seemingly ever accelerating change so that the phrase "change or die" has increasing resonance. Coping with change has become another element in organizations' battle to compete, thereby focusing attention on the need to manage change effectively. The aim of this course is to provide an understanding of the change management process and to present a framework for managing change in order for the participants to further explore advanced issues related to change management such as leadership, resistance to change, communication in a change context etc.

### **Specific Objectives**

On successfully completing the module, participants will be able to do the following.

- Present a clear view of the theory and practice of managing change.
- Demonstrate an understanding of the choices and dilemmas facing organisations.
- Explain the nature and history of the theories, approaches and beliefs available to guide their action, in order to make informed choices when instigating and implementing change.
- Demonstrate a practical understanding of organizational change, of the approaches to change and the methods of identifying, planning and implementing change.

### **Methodology**

The course is based on lectures, workshops and individual and group work . Please find below a detailed description of these scheduled meetings.

<b>Weeks</b>	<b>CONTENT</b>
1	Introduction to the course Introduction to change management



2	Selecting change agents/ Theory and team exercise
3	Culture change: Case study
4	Workshop: Identify success or failure factors in a culture change context
5	The role of culture in mergers and acquisitions
6	Resistance to change
7	Workshop: Antecedents and outcomes of resistance to change
8	Leadership and change management
9	Communication and change
10	Group presentations

### **Assessment**

**Course assessment is based on a group assignment and a group presentation:**

**Group report:** In a group of 5-7 people, you try to explore a major change that took place in a European country. The aim is to collect information in order to write a case study of a major change presenting its main phases, ways of change implementation, main obstacles etc. This report counts for the 70% of your total mark.

**Group presentation:** You need to present to our group your main findings in a 10 minute presentation. This presentation counts for the 30% of your total mark. More information will be given in the first lecture.

### **Reading**

Change is a broad subject and therefore students need to invest on searching and collecting materials from the library. Students will have access to e-class where there is recommended reading list.

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***

### **3. Marketing of Services**

#### **Kalipso Karantinou**

6 ECTS credits

Level: Advanced

#### **Contact Details**

E-mail: kkarantinou@aueb.gr

#### **Course Objectives**

The service sector is the dominant driving economic force worldwide and marketing and management practices in this field are evolving rapidly. There is as a result an increasing academic and business interest in the service sector, where the manufacturing-based models of business and marketing practice are not always useful, relevant and appropriate. Service organizations differ in many important respects, posing a number of interesting challenges to managers, and thus requiring a distinctive approach to the development of marketing strategies. This course aims to provide the students with an extensive understanding of the distinguishing characteristics of services and their implications and to acquaint students with services marketing theories, models, applications, and best practices, as ways to deal effectively with the unique challenges in services.

#### **Learning Outcomes**

At the end of the course, students should have developed a comprehensive understanding of the distinguishing characteristics of services, an appreciation of their multifaceted implications, and a resulting insight into the challenges of managing and marketing services. They should be able to identify optimal strategies for services and know how to implement them.

#### **Course Content**

- The Uniqueness and Characteristics of Services
- Managerial Implications and Challenges in Marketing Services
- Service Quality - Customer Care - Service Excellence
- Service Failure - Service Recovery
- Service Positioning and Branding
- Advertising Services
- **The Role of People in Services**
- Physical Evidence and Servicescapes
- **Using Process as a Distinguishing Advantage in Services**
- **Pricing for Optimal Yield and Demand Management**
- Loyalty and Relationship Development in Services

#### **Teaching and Learning Methods and Style**

Sessions combine lecture style delivery with analysis of case studies, reference to practical examples, video presentations, practical application group exercises, and extensive discussions of the application of theories in a variety of different sectors and situations, resulting in an interactive format. Case studies are used in every lecture to enable the application of the discussed strategies

and methods. Participants are also involved in team exercises, creating servicescapes, developing blueprints, evaluating advertising campaigns, and devising customer relationship management schemes.

### **Recommended Reading Material**

1. Fisk, Raymond P., Grove, Stephen J. & John, Joby (2013), **Services Marketing Interactive Approach**, Fourth Edition, Southwestern Cengage Learning.
2. Lovelock, C. H. & Wirtz, J. (2007), **Services Marketing: People, Technology, Strategy**, Sixth Edition, Pearson, Prentice-Hall.
3. Wirtz, Jochen, Chew, Patricia & Lovelock, Christopher (2012), **Essentials of Services Marketing**, Second Edition, Pearson Education.

Additional readings, business practice examples, academic journal papers, and case studies are uploaded onto eclass every week, illustrating the discussed concepts and their applications.

### **Assessment**

Assessment will be by a combination of:

- Examination (70%),
- Projects (30%).

***Attention: Please be aware that the number of participants in the course is limited (max 50 students).***

# SCHOOL OF INFORMATION SCIENCES AND TECHNOLOGY

## DEPARTMENT OF INFORMATICS

Incoming Erasmus students who speak Greek may attend any of the undergraduate courses of the Department of Informatics (7 or 6 ECTS credits each); their descriptions (in Greek) can be found at: <http://www.cs.aueb.gr/el/content/programma-spydon>.

Incoming students who speak English may also attend any of the following courses, which are offered as reading courses.

### FALL SEMESTER

**1. Computer Graphics**, G. Papaioannou,  
6 ECTS credits

#### Communication with Lecturer

e-mail: [gepap@aueb.gr](mailto:gepap@aueb.gr)

#### Course Description

Digital imaging synthesis, applications and representation models. Basic drawing algorithms, antialiasing and supersampling. 2D and 3D transformations and coordinate systems, kinematic chains, scene graphs and modeling. Culling, viewing transformations and projections. Data structures for polygonal models. Back face removal. Hidden surface elimination and depth sorting. Scanconversion and the Z-buffer algorithm. Illumination models, the bidirectional reflectivity distribution function and empirical local illumination models and algorithms. Texturing: Texture maps, texture coordinates and transformations, antialiasing and procedural textures. Introduction to shaders. Animation techniques and motion synthesis. Shadow generation: Shadow volumes and the stenciled shadow volumes algorithm. Shadow maps. Hardware implementation of the above topics. Ray tracing. Optional graphics programming project in OpenGL.

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**2. Wireless Networks and Mobile Communications**, V. Siris  
6 ECTS credits

#### Communication with Lecturer

e-mail: [vsiris@aueb.gr](mailto:vsiris@aueb.gr)

#### Course Description

The course's goal is an in depth discussion of the fundamental principles, architectures, and functionalities of wireless networks and mobile communications. The course discusses not only how wireless networks operate, but also why they operate in a particular way. Moreover, the course highlights key trends which includes cross-layer dependence of functions in wireless networks and the integration of fixed/wired with wireless and mobile communications.

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### 3. Diploma Thesis

6 ECTS credits

Interested students should contact directly the faculty members: T. Kalamboukis (tzk@aueb.gr), G. Polyzos (polyzos@aueb.gr), V. Vassalos (vassalos@aueb.gr), Vana Kalogeraki ([vana@aueb.gr](mailto:vana@aueb.gr)), G. Papaioannou (gepap@aueb.gr)

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## SPRING SEMESTER

### 1. Distributed Systems, V. Kalogeraki,

6 ECTS credits

Communication with Lecturer

e-mail: vana@aueb.gr

Course Description: The purpose of this course is to integrate the theory and practice of distributed systems with focus on recent developments and state-of-the-art practical systems. The topics we will cover include middleware architectures, process management, replication, consistency and group communication protocols, peer-to-peer systems, real-time scheduling, programming frameworks such as MapReduce, file systems and caching, and distributed sensor systems. We will discuss detailed case studies that illustrate the concepts for each major topic.

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### 2. Software Verification, Validation & Maintenance, N. Malevris

6 ECTS credits

Communication with Lecturer

e-mail: ngm@aueb.gr

#### Course Description

Importance of software specifications and user's requirements. Programming practice. Programming languages importance in software development. High quality software development. Software quality and methods for achieving it. Quality standards. Software verification – formal methods. Validation of software and techniques. Software testing. Strategies and methods for effective software testing. Test data generation. Software maintenance. Emphasis on effective methods for maintaining software. Importance of appropriate documentation in software development. Cost estimation of software development. Emphasis on special characteristics of object oriented software as well as web applications. Automated tools with respect to the topics listed above.

#### Suggested textbooks

M. PEZZE, M. YOUNG, «SOFTWARE TESTING AND ANALYSIS: PROCESS, PRINCIPLES AND TECHNIQUES» (WILEY) or

P.AMMANN, J.OFFUTT, INTRODUCTION TO SOFTWARE TESTING (CAMBRIDGE UNIVERSITY PRESS).

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### **3. Diploma Thesis**

6 ECTS credits

Interested students should contact directly the faculty members: G. Polyzos (polyzos@aueb.gr), V. Vassalos (vassalos@aueb.gr), G. Papaioannou (gepap@aueb.gr)

## **DEPARTMENT OF STATISTICS**

**All students should come from Department of Statistics or Department of Mathematics**

### **FALL SEMESTER**

#### **1. Stochastic Processes II (Reading Course)**

Ath. Yannacopoulos

8 ECTS credits

#### **Communication with Lecturer**

e-mail: [ayannaco@aueb.gr](mailto:ayannaco@aueb.gr)

#### **Prerequisites**

Probability Theory

#### **Course Content**

This is a course on stochastic processes, covering the following topics:

- Introduction to martingales and their properties including martingale convergence theorems and martingale inequalities with their various applications.
- Markov processes in continuous time, and applications.
- The Poisson process.
- The Wiener process, properties and applications.
- Diffusion processes and stochastic integration with applications.
- Elements of stochastic modeling.
- Simulation of stochastic processes (including lab sessions)

#### **Recommended or required reading**

Brezniak and Zastawniak, Stochastic processes, Springer

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## 2. Statistical Quality Control (Reading Course)

St.Psarakis

8 ECTS credits

### Communication with Lecturer

e-mail: [spsa@aueb.gr](mailto:spsa@aueb.gr)

### Prerequisites

Attendance and knowledge of topics related to Estimation-Hypothesis testing, are very useful.

### Course contents

Definition of quality. Basics on quality and statistical quality control. Cause and effect chart, Pareto chart. Control charts for variables. Attributes control charts, Individual charts. Capability indices, Introduction to multivariate control charts. Basics of six sigma methodology. Acceptance sampling.

### Recommended or required reading

- Montgomery, D.C. (2005). Introduction to Statistical Quality Control. J. Wiley New York 5th edition.
- Ryan, T. (2000). Statistical methods for quality improvement. J. Wiley New York 2nd edition.

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## 3. Computational Statistics (master course)

D. Karlis

7,5 ECTS credits

### Communication with Lecturer

e-mail: [karlis@aueb.gr](mailto:karlis@aueb.gr)

### Prerequisites

Probability, Statistics, Estimation-Hypothesis testing, Linear Modelling, Analysis of Variance. The course is suitable for students from Statistics departments.

### Course contents

R programming, simulation techniques, Monte Carlo methods, numerical methods for stats, smoothing, numerical optimisation, bootstrap, MCMC.

#### **Recommended or required reading**

Venables, W.N., Ripley, B.D. (2002). Modern Applied Statistics with S (4th edn). Springer  
Crawley, M.J. (2002). Statistical Computing: An introduction to data analysis using S-Plus. Wiley  
Robert, C.P. and Casella, G. (2010). Introducing Monte Carlo Methods with R, Springer.  
Efron, B. and Tibshirani, R.J. (1993). An Introduction to the Bootstrap, Chapman & Hall.

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#### **4. Actuarial Science II (Reading course)**

A. Zimbidis

8 ECTS credits

#### **Communication with Lecturer**

e-mail: [aaz@aueb.gr](mailto:aaz@aueb.gr)

#### **Prerequisites**

Basic knowledge of Mathematics, Probability and Statistics.

#### **Course contents**

Survival function, Simple mortality table and related functions, force of mortality, laws Classics mortality, actuarial tables and commutation functions, Stochastic approach to Life Insurance. Life annuities with one or more payments annually, Relationship between annuities, life insurance of various kinds, Relationship annuities and insurance, interest rate movements and mortality. Net premiums and gross premiums, concept and process of calculating reserves, Relationship between successive stock price. Tables and Actuarial functions for two or more persons, Contingent actuarial functions..

#### **Recommended or required reading**

- Zimbidis A.(2009), «Actuarial Mathematics of Life Insurance»
  - Neil A. (1986), «Life Contingencies» Heinemann Professional Publishing
  - Etienne De Vylder (1997), “Life insurance : Actuarial Perspectives”
  - Kluwer Academic Print
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## **5. Data Analysis (master course)**

I. Ntzoufras

7.5 ECTS credits

### **Communication with Lecturer**

e-mail: [ntzoufra@aueb.gr](mailto:ntzoufra@aueb.gr)

### **Prerequisites**

Statistical Inference, Regression Analysis, Basic knowledge of R.

### **Course contents**

Primary aim of this course is the understanding and the application of statistical method in real life problems of various scientific fields such as Management, Marketing, Psychology, Medicine, Sports and Social Sciences. Focus is given on the review of parametric and non-parametric hypothesis tests for one and two samples (t-tests και Wilcoxon tests), analysis of variance and regression models. Emphasis is given in the implementation of all methods using R and in problem solving. Interesting real life datasets and problems are analyzed during this course with aim to provoke their attention and motivate them.

The course is taught in 12 four-hour sessions (9 lectures and 3 labs) which will cover the following topics: Introduction to data analysis and analytics - motivation; Descriptive analysis and Data visualization; Basic principles of Statistical Inference (Estimators, point estimation, interval estimation, hypothesis tests, p-values, data analysis with R ( t-tests,  $\chi^2$ , ANOVA, normality tests, tests for equality of variances); Correlation and Simple linear regression, Regression diagnostics; Outliers and influential points; Multiple regression; Collinearity; AIC and BIC; Stepwise variable selection; Ridge regression; Lasso Regression.

### **Examination**

One assignment (50%) and one written examination (50%) with the requirement the grade in the written examination to be higher than 5 (out of 10).

### **Recommended or required reading**

1. Diez, D., Barr, C., & Cetinkaya-Rundel, M. (2012). *OpenIntro statistics* (Second Edition). Free Open Book; available at <http://www.openintro.org/stat/textbook.php>
  2. Fox J. & Weisberg H.S. (2011). *An R Companion to Applied Regression*. 2<sup>nd</sup> edition. SAGE Publications Inc.
  3. Faraway, J. (2002). *Practical regression and ANOVA using R*; available at <http://cran.r-project.org/doc/contrib/Faraway-PRA.pdf>
  4. James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). *An introduction to statistical learning*. Springer; available at <http://www-bcf.usc.edu/~gareth/ISL/>
  5. Rui Miguel Forte (2015). *Mastering Predictive Analytics with R* Paperback. Packt Publishing
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### **SPRING SEMESTER**

#### **1. Multivariate Statistical Analysis ADVANCED LEVEL (Reading Course)**

D. Karlis

8 ECTS credits

#### **Communication with Lecturer**

e-mail: [karlis@aueb.gr](mailto:karlis@aueb.gr)

#### **Prerequisites**

Knowledge of

- Statistical Inference
- Linear Algebra
- Basic knowledge of R

The course has the following parts

- Multivariate descriptive and graphs
- Multivariate normal and related distributions
- Hypotheses tests for multivariate data
- MANOVA
- Multivariate Linear model
- Principal Components Analysis
- Factor Analysis

During the course there are 3-4 projects. The projects need computing in R.

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## 2. Statistical Learning (master course)

D. Karlis

4 ECTS credits

### Communication with Lecturer

e-mail: [karlis@aueb.gr](mailto:karlis@aueb.gr)

### Prerequisites

Attendance only for students from Statistics departments with good knowledge of R, statistical inference, data analysis and Linear algebra.

### Course contents

Unsupervised learning: association rules, clustering, self organizing maps Supervised Learning: LDA, QDA, k-nn, penalized LDA Kernel methods and regularization methods (Ridge, Lasso, Elastic Net) Model Assessment and Selection. Big data problems

### Recommended or required reading

- Hastie, Tibshirani and Friedman (2009) Elements of Statistical Learning, 2nd edition Springer
- James, Witten, Hastie and Tibshirani (2011) Introduction to Statistical Learning with applications in R, Springer
- B. S. Everitt, S. Landau, M. Leese, and D. Stahl (2011) Cluster Analysis, Fifth Edition, Wiley

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## 3. Introduction to Probability and Statistics using R (Reading Course) ADVANCED LEVEL

D.Karlis

8 ECTS credits

### Communication with Lecturer

e-mail: [karlis@aueb.gr](mailto:karlis@aueb.gr)

### Prerequisites

Students should have taken introductory courses in Probability, Statistics and R programming. The

course is suitable only for Statistics students

### **Course Content**

Emphasis is given on R programming using ideas from probability and Statistics. So, the course is mainly an R programming course. The course aims at introducing ideas from Probability and Statistics together with R programming. Such examples are using simulation to show and understand with the Central limit theorem, the law of large numbers, probability as frequency, descriptive statistics and their properties etc

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## **4. Actuarial Science I (Reading course)**

A. Zimbidis

8 ECTS credits

### **Communication with Lecturer**

e-mail: [aaz@aueb.gr](mailto:aaz@aueb.gr)

### **Prerequisites**

Basic knowledge of Mathematics, Probability and Statistics.

### **Course contents**

Uncertainty, Risk, Insurance, Insurance Companies, Actuaries, Insurance Concepts, Products, Actuarial base. Frequency, severity and pricing methodology premium adjustments, Projections and trends for the final payments by using linear and other models. Reserving methods, Analysis of Insurance Data, Triangular methods and stochastic methods of reserving, Discounting reserves, and Confidence Intervals. Reinsurance schemes, «Bonus-Malus» and Markov Chains.

### **Recommended or required reading**

- Zimbidis A.(2008) “Actuarial Mathematics of Non-life Insurance”
  - Brown R.L , Gottlieb L.R. (2005) -3<sup>rd</sup> edition
  - “Introduction to Ratingmaking and Loss Reserving for Property and Casualty Insurance”, Actex Publications,
  - Mikosch T. (2006) “Non-Life Insurance Mathematics: An Introduction with Stochastic Processes” ,Springer
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## **5. Stochastic Models in Finance (master course) MSc Level**

Ath. Yannacopoulos

3,5 ECTS credits

### **Communication with Lecturer**

e-mail: [ayannaco@aueb.gr](mailto:ayannaco@aueb.gr)

### **Prerequisites**

Probability theory and Stochastic Processes

### **Course Content**

This is an introduction to the modern theory of stochastic finance. The aim of the course is to introduce the students to the basic concepts of this field, which are to be used in asset pricing, portfolio optimization etc.

The syllabus is as follows:

1. Introduction, assets and assets markets
  2. Arbitrage and the pricing kernel
  3. Stochastic models for stocks
  4. Derivative pricing, the binomial and the Black – Scholes model – martingale pricing and the equivalent martingale measure
  5. Introduction to bond pricing
  6. Introduction to portfolio theory
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## **6. Financial Econometrics (master course)**

I. Vrontos

3,5 ECTS credits

### **Communication with Lecturer**

e-mail: [vrontos@aueb.gr](mailto:vrontos@aueb.gr)

### **Prerequisites**

Statistical Inference, Regression Analysis, Basic knowledge of Matlab.

## Course contents

Introduction to Course: Outline of Topics, Basic Econometric Models, Mean-Variance Portfolio Theory (Return and risk, Portfolio diversification, Construction of optimal portfolios, Basic empirical application), Performance Evaluation of Financial Assets (Capital asset pricing model, Treynor measure, Sharpe measure, Jensen's alpha, Multifactor models, Alternative measures, Empirical application), Characteristics of Financial Data (Fat tails, Volatility clustering phenomenon, Leverage effect), Heteroskedasticity Models (ARCH, GARCH and EGARCH models, Properties of time-varying models, Estimation of heteroskedastic models, Empirical application), Multivariate Factor models (Single index models, General multivariate multifactor model), Multivariate Heteroskedasticity Models (Multivariate ARCH/GARCH models, Constant conditional correlation model, Empirical application)

## Recommended or required reading

Tsay, R.S. (2002). Analysis of Financial Time Series, Wiley  
Elton, E. J., Gruber, M. J., Brown, S. J., and Goetzmann, W. N. (2006). Modern Portfolio Theory and Investment Analysis (7th Ed.), Wiley.  
Sharpe, W., Alexander, G. and Bailey, J. (1995). Investments (5th Ed.), Prentice Hall.

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## **7. Biostatistics (master course)**

N. Demiris

4 ECTS credits

### Communication with Lecturer

e-mail: [nikos@aueb.gr](mailto:nikos@aueb.gr)

### Course contents

#### **Survival Analysis**

Introduction to the main concepts. Hazard and Survival functions.  
Parametric methods. Likelihood function. Exponential and Weibull case. Applications in R  
Non-parametric methods. The Kaplan-Meier estimator. The Nelson-Aalen estimator.  
Graphical goodness of fit using R  
Regression Models. Proportional Hazards. Applications in R  
Survival analysis through counting processes  
Frailty Models  
Other regression models, including additive hazards and accelerated failure time  
Martingale residuals. Model selection.  
Multi-state Models and Competing Risks.

## **Epidemic Models**

Deterministic SIR models. The Basic Reproduction number. Disease Control. Examples using R  
**Meta Analysis** and evidence Synthesis

## **Epidemiology**

Basic Concepts. (De)Confounding.

### **Recommended or required reading**

David W. Hosmer, Jr., Stanley Lemeshow, Susanne May, 2008 Applied Survival Analysis: Regression Modeling of Time to Event Data, 2nd Edition. Wiley Series in Probability and Statistics

Diekmann O., Heesterbeek, J.A.P. and Britton, T. (2013). Mathematical tools for understanding infectious disease dynamics. Princeton UP.

Kenneth J. Rothman, Sander Greenland, Timothy L. Lash, 2012 Modern Epidemiology Third Edition, Lippincott Williams & Wilkins

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## **8. Probability Theory (master course)**

E.Kyriakidis

4 ECTS credits

### **Communication with Lecturer**

e-mail: [ekyriak@aueb.gr](mailto:ekyriak@aueb.gr)

### **Course contents**

Probability Theory

Countable and uncountable sets. Probability spaces. Random variables.

Expected value. Almost sure convergence and the dominated convergence theorem.

Convergence in probability and in distribution. The Law of Large Numbers and the Ergodic Theorem. Stein's Method. The Central Limit Theorem. Conditional Expectation and

Martingales.

### **Recommended or required reading**

P. Billingley, Probability and Measure, third Edition, Wiley, New York, 1995.

R. Durrett, Probability: Theory and Examples, second edition, Duxbury Press, Belmont, 1996.

S. M. Ross and E. A. Pekoz, A second Course in Probability, [www.ProbabilityBookstore.com](http://www.ProbabilityBookstore.com), Boston, 2007.

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## 9. Advanced Stochastic Processes (master course)

M.Zazanis

4 ECTS credits

### Communication with Lecturer

e-mail: [zazanis@aueb.gr](mailto:zazanis@aueb.gr)

### Course contents

Martingales in Discrete and Continuous Time. Brownian Motion: Characterization, Construction and Properties. Quadratic Variation. Ito integration. Properties of Ito integrals, the Ito formula. Stochastic Differential Equations. Existence and uniqueness of solutions. Examples and applications from Insurance, Finance, and Operations Research.

### Recommended or required reading

Fima C. Klebaner (2005). *Introduction to Stochastic Calculus with Applications*. Imperial College Press.

Bernt Oksendal (2003). *Stochastic Differential Equations, an Introduction with Applications*. Sixth Edition, Springer Verlag.

J. Michael Steele (2000). *Stochastic Calculus and Financial Applications*. Springer Verlag.

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Athens, July 04,2017  
From the Erasmus+ Office