COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED ECONOMIC AND SOCIAL SCIENCES		
ACADEMIC UNIT	AGRIBUSINESS AND SUPPLY CHAIN MANAGEMENT		
LEVEL OF STUDIES	*Undergraduate*		
COURSE CODE	**GEN602**	**SEMESTER**	5th
COURSE TITLE	OPERATIONAL RESEARCH		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**CREDITS**
	Lectures	5	5
COURSE TYPE	General Background		
PREREQUISITECOURSES	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	YES (in English)		
COURSE WEBSITE(URL)	https://oeclass.aua.gr/eclass/courses/4843/		

2. LEARNING OUTCOMES

Learning Outcomes

The aim of the course is:

To introduce students to the terms and the meanings of Operations Research.

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

- Distinguishes the basic principles of Operations Research.
- Understands the basic "tools" for dealing with theoretical and practical problems that arise in the modern business environment.
- Classify problems of Operations Research.
- Solve problems of Operations Research.
- Apply these methods to economy and management.
- Apply these methods to supply networks.
- Identify problems and propose alternative solutions related to the actions of each organization
- Understand the importance and the way of operation of the examined public and private organizations

General Competences

Adapting to new situations

Decision-making

Working independently

Teamwork

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas Teamwork

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional, and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

3. SYLLABUS

1. The role of Operations Research in decision making
2. Models, techniques and methodology of Linear Programming
3. Linear Programming. General Issues. Examples of formulations.
4. The Simplex method.
5. The variations of Simplex method.
6. Duality theory.
7. Applications of Linear Programming.
8. Introduction to Dynamic Programming.
9. Optimality equations for finite and infinite horizon problems.
10. Applications to problems in network flows, inventory management
11. Applications to maintenance and replacement of equipment.
12. No-Linear Programming.
13. Introduction to Game Theory.

A combination of teaching and learning methods will be used, aiming at the active participation of the students and the practical application of the thematic units under examination; there will also be lectures using audiovisual media, discussions, and analyses of case studies on real business issues, experiential (group) activities, as well as projections of relevant videos. The students will also undertake an individual or group project. Furthermore, articles, audiovisual lecture materials, web links/addresses, useful information, case studies and exercises for further practice are posted in digital form on the AUA Open e-Class platform.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face –to- face, Distance learning
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY	• Support of the learning process through the University's AUA Open eClass platform (integrated e-Course Management System) • Support of lectures using presentation software • Use of audiovisual material • Use of web applications **Communication with students**: face to face at office hours, email, eclass platform
TEACHING METHODS	

Activity	*Workload*

Lectures (direct)	52
Writing paper/ papers	32
Independent Study	39
Advisory support	0,5
Exams	***2***
Course Total (Approximately 25 hours of workload per credit unit125.5)	***125,5 h***

STUDENT PERFORMANCE EVALUATION	The evaluation process is in the language that the course is taught (Greek or English) and consists of: Compulsory written final examination at the end of the semester (weighting factor **100**%) which may includes: ● Multiplechoice questionnaires ● Open-endedquestions ● Problemsolving ● Oral examination **Evaluation criteria:** correctness, completeness, clarity **Special learning difficulties:** Students with **special learning difficulties** in writing and reading (as they are certified and characterized by a competent body) are examined based on the procedure provided by the Department. **Specifically-Defined Criteria:** The evaluation criteria are made known during the first lesson and are clearly stated on the course website and the AUA Open e-class platform. The answers to the exam questions are posted on the AUA Open e-Class platform after the exam. The students are allowed to see their exam paper after its grading (during the announced office hours) and receive explanations about the grade they received.

5. ATTACHED BIBILIOGRAPHY

Suggested bibliography:

- Π. Υψηλάντης, Επιχειρησιακή έρευνα, Εκδόσεις Προπομπός 2015.
- Ι. Κολέτσος, Δ. Στογιάννης, Εισαγωγή στην Επιχειρησιακή Έρευνα, 2015.
- Μ. Λουκάκης, Γραμμικός Προγραμματισμός, αριστοποίηση σε δίκτυα, Εκδόσεις Σοφία, 2010.
- Δ. Φακίνου, Α. Οικονόμου, Εισαγωγή στην Επιχειρησιακή Έρευνα, Εκδόσεις Συμμετρία, 2003
- D.R. Anderson, D.J. Sweeney, T.A. Williams, K. Martin, Διοικητική Επιστήμη, Ποσοτικές μέθοδοι για τη λήψη επιχειρηματικών αποφάσεων, Εκδόσεις Κριτική, 2014.
- S. Kiener, N. Maier-Scheubeck, R. Obermaier, M. Weiß, Διοίκηση Παραγωγής, Εκδόσεις Προπομπός, 2012.

Related academic journals:

- European Journal of Operational Research.
- Journal of the Operational Research Society.