COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY		
ACADEMIC UNIT	DEPARTMENT OF STATISTICS		
LEVEL OF STUDIES	1st Cycle (UNDERGRADUATE)		
COURSE CODE	**6033**	**SEMESTER**	**4rth**
COURSE TITLE	**Sampling**		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	4	7
Workshops		
Labs	2	

COURSE TYPE	Elective – Scientific Field`
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	https://www.dept.aueb.gr/en/stat/content/sampling-7-ects

(2) LEARNING OUTCOMES

Learning outcomes
The students who attend and successfully pass the course will be ideally able to apply basic methods of sample selection and to combine these methods to collect a sample from a finite population. To choose the most effective and appropriate plan, depending on the population, among alternatives. To find estimators, their typical errors, confidence intervals and in general, statistical inference based on the sampling method used to collect the data. To be aware of sampling and non-sampling errors entering a survey and how to minimize them, and finally to compile an effective questionnaire.
General Competences
• Search, analysis and synthesis of data and information, using the necessary technologies • Adaptation to new situations • Decision-making • Respect for diversity and multiculturalism • Respect for the natural environment • Demonstration of social, professional and ethical responsibility and sensitivity to gender issues • Exercise of criticism and self-criticism

- Promotion of free, creative and inductive thinking

(3) SYLLABUS

Introductory concepts and definitions. Finite populations, subpopulations, variables. Census survey, sampling survey. Random and non-random sampling. Probability of selecting population units. Finite population parameters, parameter estimation, properties. Sampling frame. Sampling techniques. Simple random sampling. Mean, ratio and proportion estimation. Confidence intervals. Estimating required sample size. Stratified sampling. Parameter estimation. Distributing a sample in strata. Comparing simple random to stratified sampling. Quota sampling. Systematic sampling. Estimating parameters and comparison to other sampling techniques. Probability proportional to size ('PPS') sampling. Cluster sampling. Single stage cluster sampling. Equal and non-equal probability sampling. Two stage cluster sampling. Conducting a sampling research. Sampling frame, questionnaire and methods of data collection. Sampling research errors. Methods of avoiding or minimizing errors and correction methods. Non response errors, adjustment and imputation techniques.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</td><td>YES</td></tr>
<tr><td>TEACHING METHODS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>50</td></tr>
<tr><td>Lab Exercise</td><td>20</td></tr>
<tr><td>Tutorials</td><td>30</td></tr>
<tr><td>Assignments</td><td>5</td></tr>
<tr><td>Self Study</td><td>70</td></tr>
<tr><td>Course total</td><td>175</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION</td><td>Written examination at the end of the semester: 85%
Home Assignment: 5%
Exercises: 5%

Information available.</td></tr>
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(5) ATTACHED BIBLIOGRAPHY

- Παπαγεωργίου Ι., Θεωρία Δειγματοληψίας, 2016.
- Sarndal, C-E., Swensson, B., Wretman, J. (1992) Model assisted survey sampling. Springer.
- Lohr, S. (2010) Sampling: Design and Analysis. 2nd Edition. Brooks/Cole. Sengage learning.
- Kish, L. (1965). Sampling Surveys. John Wiley & Sons. New York.
- Barnett, V. (1974). Elements of Sampling Theory. The English Universities Press Ltd.
- Pascal Ardilly, Yves Tillé. Sampling Methods: Exercises and Solutions.
- Δαμιανού, Χ. (2006) Μεθοδολογία της Δειγματοληψίας. Τεχνικές και εφαρμογές. Εκδόσεις Σοφία.
- Ξεκαλάκη Ε. (1995) Τεχνικές Δειγματοληψίας. Σημειώσεις, Οικονομικό Πανεπιστήμιο Αθηνών.