ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

COURSE OUTLINE

A. INFORMATION FOR THE COURSE

-1-

A1. School	School of Science and Technology of Information
A2. Department	Department of Statistics
A3. Master Programme	
A4. Course Code	6168
A5. Title of the Course	METHODS OF BAYESIAN INFERENCE

Lecturers

Name	Rank	Specialization
PAPASTAMOULIS PANAGIOTIS	Assistant Professor	

B. TYPE OF COURSE

B1. Year of Study	4
B2. Semester	7th
B3. Level of Course (if applicable)	1st Cycle
B4. Type of course	Elective
B5. Field	Scientific Field
B6. ECTS credits allocated (ECTS)	7.00
B7. Is the Course in the Syllabus?	Yes
B8. If yes, which is the reference Page?	29-68
B9. Is there a site for the course?	Yes https://www.dept.aueb.gr/el/stat-courses

C. INSTRUCTION

C1. Lectures Include:	Classroom lectures: Yes Distance learning lectures: No Seminars: No Laboratory exercises: Yes Field training exercise: No Literary analysis: Yes Tutorial: No Interactive teaching: No Educational visits: No Project: No Essays/reports: Yes Independent study: No Lectures given by scientists: No Internship: No
C2. Scheduled Hours for Lectures per week	4.00
C3. Scheduled Hours for Tutorials per week	
C4. Scheduled Hours for Workshops per week	
C5. Scheduled Hours for Case Studies per week	
C6. Scheduled Hours for Other Activities per week	
C7. Scheduled Hours for Lectures per semester	52
C8. Scheduled Hours for Tutorials per semester	
C9. Scheduled Hours for Workshops per semester	
C10. Scheduled Hours for Case Studies per semester	
C11. Scheduled Hours for Other Activities per semester	
C12. Mode of Delivery	Face to Face
C13. Student's Evaluation	Written examination at the end of the semester: Yes Oral examination: No Midterm exam: No Homework: No Project: Yes Public Presentation: No Laboratory exercises: No Practical exercises: No Exempt work: No

-2-

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

C14. Language of Instruction	Greek

D. PREREQUISITE COURSES

E. COURSE CONTENTS (Syllabus)

Repetition of the basic principles of Bayesian inference. Markov chain, Monte Carlo and its use in Bayesian Statistics. Variations of this method and extensions. Building algorithms MCMC in R. Bayesian regression. Bayesian models using R and WinBUGS. Deviance information criterion and model complexity. Hierarchical models. Basic principles of Bayesian hypothesis testing, comparing and weighing models.

F. LEARNING OUTCOMES

After successful completion of the course the students should be able to:

- Understand the differences between classic and Bayesian approach
- Know the basic principles of the Bayesian approach
- Apply contemporary Bayesian analysis methods to real problems
- Know the tools that will assist them in implementing these analyses

G. LITERATURE

G1. Use of Multiple Literature	Yes
G2. Recommended or required reading	Yes