Survival Models

Academic Year: (2020 / 2021) **Review date: 15-07-2020**

Department assigned to the subject: Business Administration Department

Coordinating teacher: USABEL RODRIGO, MIGUEL ARTURO

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

OBJECTIVES

Learning objectives

The student will be able to understand and apply biometric models and statistical techniques to study human lifespan and medical research.

Learning outcomes

a) Understanding the main features involved in biometric models of human survival.
b) Considering the use of data censoring in the model calibration.
c) Knowledge of the most relevant techniques applied to medical research and experiment design: Kaplan-Meier and Nelson-Allen.
d) Understanding a multi-state model involving concurring risks such as various types of death and disability and critical sickness.
e) Master the graduation and data analysis techniques involved in mortality tables generation.
f) Implementing and calibrating models starting from raw data using general purpose and specific software.

Learning skills

a) Analysis and synthesis
b) Problem solving approach
c) Work team player.
d) Critical reasoning
e) Written and verbal communication

DESCRIPTION OF CONTENTS: PROGRAMME

Syllabus

I. Basic concepts
a. Lifespan random variables.
b. Hazard rates
c. Intro to mortality tables.
d. Interpolation techniques
e. Medical research models.
f. Data censoring
II. Multi-state and concurring risk models
a. Competing risks models
b. Cohort models
III. Data Analysis and model calibration.
a. Central mortality rates
b. Graduation
c. From-data-to-analysis approach
d. Software implementation

LEARNING ACTIVITIES AND METHODOLOGY

TEACHING METHODOLOGY

I. THEORETICAL CONTENTS
a. Classroom interactive work.
b. Web based materials and handouts
c. Tutorial work.
d. Recommended international bibliography.

e. Office hours and email interaction.
II. PRACTICE
a. Examples and exercises and previous exams classroom solving.
b. Daily students¿ involvement and presentations.
c. Computer work.
d. Debates and bringing up different standpoints on topics. Critical thinking.

ASSESSMENT SYSTEM

The evaluation system is based on the following:
-Class participation: 10%. Active participation in class, based on exercises done on the blackboard. In case of no active participation, the grade will be accumulated to the exam or the student can do an individual simmulation on Excel-BVA.
- Tests based on each topic: 30%.
-Written exam: 60%.

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40