# Epidemiology

## Prof. Antonio Giulio de Belvis; Prof. Nuno Miguel De Sousa Lunet

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The course is aimed to provide students the quantitative dimension of health through the principles and methods of modern epidemiology in order to make them able to design and carry out epidemiological studies, to correctly read them and interpret data. Furthermore, the course will give some insights into specific issues of applied epidemiology.

***COURSE CONTENT***

*1. Introduction to epidemiology*

- Definition and scope of epidemiology,

- Epidemiology and public health;

- Determinants of health

*2. Measures of occurrence: main concepts*

- proportion and ratio,

- prevalence and incidence;

*3. Measures of association*

- Absolute measures,

- Relative measures,

- Attributable and impact measures;

*4. Principles of study design*

- Case-control studies: aims, design and conduction, limits and strengths,

- Cross-sectional studies and ecological studies: aims, design and conduction, limits and strengths,

- Cohort studies: aims, design and conduction, limits and strengths,

- Experimental trials and quasi experimental studies: aims, design and conduction, limits and strengths,

*5. Bias*

*6. Confounding and effect modification: main concepts*

- Analysis of confounders and effect modifiers;

*7. Standardization*

*8. Systematic review and meta-analysis*

*9. Exposure assessment*

*10. Study of an epidemics*

*11. Evaluation of screenings, diagnostic tests and study results.*

At the end of the course students should:

1. have acquired the knowledge and understanding of the main measures of occurrence that concern the health of the populations, the health risk of the populations and the association measures that link the exposure to the effect of population health;

2. be able to know how to read and interpret epidemiological studies, meta-analysis, epidemiological reports, they should have acquired the skill to interpret the documents drawn up by the main research institutes with critical analysis of the results;

3. have developed useful skills to independently make choices on the use of measures to be used in the epidemiological field;

4. know how to deal with issues concerning the quantitative aspects of population health;

5. have acquired a rigorous and essential language that allows them to communicate clearly and effectively the knowledge acquired in the epidemiological field

***READING LIST***

Katz DL, Elmore JG, Wild DMG, Lucan SC. J*ekel’s Epidemiology, Biostatistics, Preventive Medicine, and Public Health*. Elsevier; 2014.

Fletcher RH, Fletcher SW, Fletcher GS. *Clinical Epidemiology: The Essentials*. LWW; 2012.

Rothman KJ. *Epidemiology: An Introduction*. Oxford University Press; 2012

***TEACHING METHOD***

The format of this course is a combination of lectures, case discussions, and readings. We will employ the following teaching methods:

(a) Readings from textbooks: To provide basic structure, concepts and techniques.

(b) Readings from journals: To augment the textbooks and provide more rigorous intellectual foundation.

(c) Lectures/Classes/Discussions: To create a coherent framework of studying the source material; to give students a chance to ask questions and clarify their understanding.

(d) Case studies: To apply what has been learnt to real life situations.

Active student participation is essential in the classes. In the classes, the lecturer will introduce the topic/case/experiment/exercise and lead the discussion. Pre-assigned reading of cases and exercises is essential: students are encouraged to self learning, to present pre-assigned material and lead part of the discussion in the class group.

Practicals and group activities.

***ASSESSMENT METHOD AND CRITERIA***

There are no intermediate tests.

The final mark will be based on a written test through multiple choice items and open ended questions investigating the main course contents.

***NOTES AND PREREQUISITES***

There are no specific prerequisites for this course.

***OFFICE HOURS***

For both lecturers, receptions continue to be held either in person in Room 536 on the 3rd floor of the Faculty of Economics or remotely, upon request of appointment by email:

Professor A.G. de Belvis: email to [antonio.debelvis@unicatt.it](mailto:antonio.debelvis@unicatt.it).

Professor N. M. De Sousa Lunet: email to [nunolunet@gmail.com](mailto:nunolunet@gmail.com).