# Epidemiology

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***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 simple epidemiological studies, to correctly read reports of epidemiological studies and interpret data. Furthermore, the course will give some insights into specific issues of applied epidemiology.

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, including systematic reviews of the literature; 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. have acquired a rigorous and essential language that allows them to communicate clearly and effectively the knowledge acquired in the epidemiological field.

***COURSE CONTENT***

1. *Introduction to epidemiology*

– Definition and scope of epidemiology.

– Epidemiology and public 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*

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

– Cohort studies: aims, design and conduction, limits and strengths.

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

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

5. *Systematic review and meta-analysis*

6. *Confounding and effect modification: main concepts*

– Analysis of confounders and effect modifiers.

7. *Standardization*

8. *Bias*

9. *Power analysis*

10. *Epidemiology of chronic diseases*

11. *Exposure assessment*

13. *Evaluation of diagnostic tests and study results*

***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***

Lectures. Self-learning, problem-based learning.

***ASSESSMENT METHOD AND CRITERIA***

The final exam will be performed through multiple choice items investigating: a) the knowledge of how to measure health phenomena; b) the understanding of study design principles and applications. The final mark will be based also on the written test; improvements of this classification are possible through the oral exam.

***NOTES AND PREREQUISITES***

Students will also have to book the exam via Blackboard. The Teachers are available for any explanations, clarifications and programmed extra support by requesting via e-mail.

In case the current Covid-19 health emergency does not allow frontal teaching, remote teaching ill be carried out following procedures that will be promptly notified to students.