Universitat Autònoma de Barcelona

2023/2024

Clinical and Statistical Epidemiology

Code: 42147
ECTS Credits: 10

Degree	Type	Year	Semester
4312326 Applied Clinical Research in Health Sciences	OT	0	1

Contact

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Teaching groups languages

You can check it through this link. To consult the language you will need to enter the CODE of the subject.
Please note that this information is provisional until 30 November 2023.

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Prerequisites

Basic understanding of Statistics and scientific English is recommended.

Completing the previous module of research methodology is mandatory.

Objectives and Contextualisation

Epidemiology has put the focus on the study of epidemics, but clinical epidemiology focuses on the application of epidemiological approaches to better study and to solve clinical problems of patients by analyzing determinants and the effects of clinical decisions.

Competences

- Act respecting the Independent Ethics and legal aspects of the research and of the professional activities.
- Critically evaluate, identify and classify the sources of scientific information according to the type of evidence and the scientific relevance.
- Development of habilidades autoaprendizaje y su formación Motivación to continue to postgraduate level.
- Development scientific knowledge, creativity and Critical Thinking.
- Participate in the development of a protocol for basic, clinical or experimental research, based on scientific methodology.
- Prove that the methodologies covering estadísticas básicas utilizadas in the biomedical and clinical estudios y análisis use the tools of the modern computational technology.
- Working as part of a group along with other professionals, understand their views and cooperate constructively.

Learning Outcomes

1. Act respecting the ethical and legal aspects of research and professional activities.
2. Critically evaluate the technologies and scientific information sources to obtain, interpret and communicate clinical, scientific and health information.
3. Describe in depth training on the different research designs depending on the assumptions.
4. Develop a critical reading of the scientific literature structured according to the different designs.
5. Develop scientific knowledge, critical thinking and creativity.
6. Develop self-learning skills and motivation to continue their education at the graduate level.
7. Establish and develop a protocol for clinical research in the field of epidemiology.
8. Identify the basic statistical techniques to analyze data from different studies and be able to apply descriptive.
9. Interpret the results of studies for application in both groups of patients and individual levels through the perspective of evidence-based medicine.
10. Operation procedures for clinical and epidemiological documentation.
11. Working as part of a group along with other professionals, understand their views and cooperate constructively.

Content

a) Therapeutic studies

Posing therapeutic questions. Comparing different designs to answer therapeutic questions: observational versus experimental studies. Quasi-experimental cross-over studies, before and after studies. Critical appraisal of therapeutic studies. Data analysis of experimental and quasi-experimental studies. Survival analysis.

b) Diagnostic studies

Posing diagnostic questions. Cross-sectional studies: characteristics. Technical attributes of a diagnostic test: sensitivity, specificity, predictive values, odds ratio, ROC curves. Differences with screening studies. Stages of diagnostic test assessment. Critical appraisal of diagnostic test studies. Data analysis of diagnostic test studies.

c) Prognostic and follow-up studies

Posing prognostic questions. Prognostic studies: characteristics. Follow-up studies: characteristics. Critical appraisal of prognostic and follow-up studies. Integrated use of different clinical databases. Data analysis of prognostic and follow-up studies: Poisson, Cox, among others.

d) Aetiological studies

Posing aetiological questions. Comparing the different designs to answer aetiological questions: retrospective versus prospective studies. Critical appraisal of aetiological studies. Data analysis of aetiological studies. Multivariate analysis.

e) Systematic reviews and clinical practice guides

General concepts for developing literature reviews. Systematic versus narrative reviews. Experimental versus observational study reviews. Evidence scales. Critical appraisal of systematic reviews. Clinical practice guidelines. Critical appraisal of clinical practice guides. Degrees of recommendation. Data synthesis. Meta-analysis.

f) Studies on quality of care and clinical safety

General concepts related to quality of care and specific methods to assess it. Effectiveness and outcome studies. Quality of life measurement. Cost and cost-effectiveness studies. Qualitative studies.

Find the programme for course 2021-22 online:

https://cv.uab.cat/protected/index.jsp;jsessionid=DDB751906148A026C75F6765E43B1676

Methodology

As described in the list

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom practice: Planning and resolution of case studies	20	0.8	3, 4, 7, 8, 9, 10, 11, 2
Conceptual lessons supported by ICTs and group discussions	25	1	3, 5, 4, 7, 8, 9, 10, 2
Developing essays and monographs	25	1	3, 5, 4, 7, 8, 9, 10, 2
Laboratory practices	5	0.2	1, 3, 6, 4, 7, 8, 9, 10, 11, 2
Mentoring - Supervision and support in conducting essays	85	3.4	3, 5, 4, 7, 8, 9, 10, 2
Public presentation of works - Individual presentations and round of assessments	20	0.8	3, 5, 6, 4, 7, 8, 9, 10, 11, 2
SELF-STUDY	70	2.8	3, 6, 4, 7, 8, 9, 10, 2

Assessment

The competences of this module will be assessed through: mandatory participation in 80% of the guided lessons

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Active participation in class	30%	0	0	1, 3, 5, 6, 4, 7, 8, 9, 10, 11, 2
Oral and written tests	30-40%	0	0	1, 3, 5, 6, 4, 7, 8, 9, 10, 11, 2
Submitting and assessing essays	30-40%	0	0	1, 3, 5, 6, 4, 7, 8, 9, 10, 11, 2

Bibliography

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- Gordis L. Epidemiologia. 3ª ed. Madrid, Elsevier, 2005
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- Testing Treatments interactive [Internet]. Disponible a: http://www.testingtreatments.org/

Software

Microsoft Teams