

Academic Year: (2023 / 2024)

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Department assigned to the subject: Bioengineering Department

Coordinating teacher: MUÑOZ BARRUTIA, MARIA ARRATE

Type: Compulsory ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

No recommendations

OBJECTIVES

The subject aims to provide students with tools for managing and evaluating Science in a broad context. Evaluation methods of organizations, research projects, and research careers will be reviewed from a historical framework, introducing alternative metrics and qualitative research impact evaluation. Various national and European R&D+i systems will also be presented, with special attention to regional funding and European Union framework programs. The subject will include a description of the basic building blocks of a research project and the essential aspects to consider in its economic management. Issues related to intellectual and industrial property and mechanisms for implementing entrepreneurial initiatives derived from research results will be addressed.

Finally, with a predominantly practical approach, working groups will be organized to develop research projects that exemplify high social, economic, and/or environmental impact actions.

DESCRIPTION OF CONTENTS: PROGRAMME

THEORY PROGRAM

A. Research Evaluation

1. Historical perspective and indicators
2. National Agency for Quality Assessment and Accreditation (ANECA)
3. Evaluation of organizations, research projects, and research careers
4. Alternative indicators and qualitative evaluation

B. R/D+i Systems

1. Historical Introduction
2. Public Research Organizations
3. State Research Agency (AEI) and CDTI
4. Territorial funding programs
5. European Union Framework Programs

C. Structure of a research project and economic and legal aspects

1. Parts of a research project
2. Economic management
3. Industrial and intellectual property
4. Entrepreneurial initiatives

PRACTICAL PROGRAM

A. Practical development of a research project (in working groups)

1. Ideation and design of a research project
2. Oral presentation
3. Peer evaluation

LEARNING ACTIVITIES AND METHODOLOGY

ATTENDANCE

Percentage of in-person activities: 50 hours

Percentage of online activities: 100 hours

LIST OF EDUCATIONAL ACTIVITIES

In-person activities

Theoretical classes in the classroom: 30

Seminars: 3

Academically-directed assignments: 10

Evaluation activities (3-hour written exam + 4-hour presentation of assignments): 7

EDUCATIONAL ACTIVITIES

- Master classes: Presentation of content by professors

- Seminars: Supervised monographic sessions with shared participation among experts, teachers, and students

- Academically-directed assignments: Preparation of a research project in working groups under the supervision of the faculty

- Presentation of assignments: Oral presentation of projects to classmates and faculty

TEACHING METHODOLOGIES

- Expository method: Oral presentations by faculty supported, if necessary, by computer materials (PowerPoint, Internet information, etc.)

- Project-based learning: Completion of projects within a set timeframe to address a task through planning, designing, and carrying out a series of activities, all based on the development and application of acquired knowledge.

- Cooperative learning: Promotes the development of autonomous learning through collaboration among peers.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	45
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% of continuous assessment (assignments, laboratory, practicals...):	55
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ORDINARY CALL

Learning outcomes will be evaluated throughout the course using different assessment methods, with the following contribution to the final grade:

WRITTEN FINAL EXAM

The written final exam will have a weighting of 45% towards the final grade, and it will cover questions related to the first three thematic blocks presented during the master classes: (1) research evaluation; (2) R/D+i systems, and (3) structure of a research project and economic and legal aspects.

RESEARCH PROJECT

The research project will be carried out in working groups designated by the course faculty. The grade obtained will have an individual character with a total weighting of 50% towards the final grade, distributed as follows:

- Faculty evaluation, up to 20%

- Peer evaluation, up to 30%

PARTICIPATION IN SEMINARS

Active participation during the seminar sessions and any proposed activities during them will be values up to 5% of the final grade.

LIST OF ASSESSMENT ACTIVITIES

Final exam: 45%

Research project (faculty evaluation): 20%

Research project (peer evaluation): 30%

Active participation in seminars: 5%

EXTRAORDINARY CALL

Learning outcomes will be evaluated throughout the course using different assessment methods, with the following contribution to the final grade:

WRITTEN FINAL EXAM

In the extraordinary call, the written final exam will have a weighting of 70% towards the final grade,

% end-of-term-examination/test:	45
% of continuous assessment (assignments, laboratory, practicals...):	55

and it will cover questions related to the first three thematic blocks presented during the master classes: (1) research evaluation; (2) R&D+i systems, and (3) structure of a research project and economic and legal aspects.

RESEARCH PROJECT

In the extraordinary call, the research project will be carried out individually and may consist of an extension of the work carried out during the ordinary call in the working group, allowing the students to improve and correct the report. The new report will be evaluated by the course faculty, and its grade will have an individual character with a total weighting of 25% toward the final grade. Exceptionally, the student may be asked to present the introduced modifications orally.

PARTICIPATION IN SEMINARS

For the extraordinary call, the evaluation of up to 5% obtained by active participation during the seminar sessions and any proposed activities will be conserved.

LIST OF ASSESSMENT ACTIVITIES

Final exam: 70%

Research project (faculty evaluation): 25%

Active participation in seminars: 5%

BASIC BIBLIOGRAPHY

- Bellavista, J., Guardiola, E., Mendez, A., Bordons, M., Evaluacion de la investigación, Centro de Investigaciones Sociológicas, 1997
- Crawley, G. M., O'Sullivan, E. How to write a research proposal and succeed, Imperial College Press, 2015
- Giménez Toledo, E. Malestar: Los investigadores ante su evaluación, Iberoamericana Editorial Vervuert, 2016
- Pulpón Segura, A. M., Garrido Aguilar, E. M., Delgado Hito, P., Icart Isem, M. T., Cómo elaborar y presentar un proyecto de investigación, una tesina y una tesis, Publicacions i Edicions de la Universitat de Barcelona, 2012
- null Horizon Europe Programme Guide, Comisión Europea, 2022
- null Reforma de la Ley de la Ciencia, la Tecnología y la Innovación, Boletín Oficial del Estado, Disposición 14581, n. 214, 2022

ADDITIONAL BIBLIOGRAPHY

- Bucchi, M., & Trench, B. Handbook of public communication of science and technology, Routledge, 2008
- Cantor, G. N., Christie, J. R., Hodge, M. J. S., & Olby, R. C. Companion to the history of modern science, Routledge, 2006
- García Quevedo, J., Martín Bofarull, M., Piñol Alabart, J. M., Teruel, M., El sistema d'innovació territorial de la demarcació de Tarragona, Publicacions URV, 2010
- Harré, R. The philosophies of science, philarchive.org, 1985