

Italian code: SECS-P/08

Credits: 9

Course: Management of Scientific Research

Main language of instruction: Italian

Other language of instruction: English

Head instructor

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Objectives

This course provides guidance for successful research, drawing on experience from major research projects and management research.

The Research Management course has the following training objectives:

- 1- Illustrate the functioning and understand the context of a research project and the classes of circumstances and limitations that might be associated with one particular class of assets.
- 2- Describe the main functions and the nature of scientific research of innovation in a general way.
- 3- Illustrate the evolution of the models, the nature of the research sectors and the different types of external constraints and how they influence the nature of the project.
- 4- Analyze the area of governance and management throughout the entire life cycle of a project, from concept to planning to execution.
- 5- Illustrate the systemic conditions and competitiveness that emerge from the nature of research and the necessary human interactions.
- 6- Illustrate the research group-environment interaction and adaptation strategies of dynamic management to obtain a positive result.
- 7- Analyze organizational change as a key to resilience and long-term success

Course structure

- Module 1 – The nature of research and innovation (5 theory lessons video-recorded for a commitment of 17.5 hours – weeks 1 and 2)
- Module 2 – The life cycle of a project (5 video-recorded theory lessons for a commitment of 17.5 hours – weeks 2 and 4)

- E-tivity 1 (6 hours of study load – week 2);
- E-tivity 2 (6 hours of study load – week 4).
- Module 3 – How to plan and manage a project (5 theory lessons video-recorded and 5 exercise lessons for a commitment of 22 hours – 5 weeks and 6)
- Module 4 – Communicating research (5 video-recorded theory lessons for one commitment of 17.5 hours – weeks 7 and 8)
- Module 5 – Research problems (5 video-recorded theory lessons for one engagement of 17.5 hours – weeks 9 and 10)
- Module 6 – Case studies (5 video-recorded theory lessons for a commitment of 17.5 hours – weeks 11 and 12)

Competencies

At the end of the course, the student will have demonstrated the ability to:

A [Knowledge and Understanding]

At the end of the course the student will have acquired basic knowledge (theoretical and practices) and the analytical and operational tools to understand and interpret the problems of functioning and administration of research groups in complex environments. He will have gained awareness in the fields of theory planning, with particular reference to the role of people in the relationship mutual functionality at an interdisciplinary and intersectoral level and the resulting ones adaptation strategies of research partnerships.

B [Application of Knowledge]

The student will be able to use the knowledge gained to strengthen the critical reasoning skills and decision-making ability particularly with reference to managerial choices and their compatibility with the objectives of different research projects. The course involves the application of knowledge theoretical to practical problems to be solved with the help of exercises, forums and works of group.

C [Ability to Draw Conclusions]

Due to the predominantly descriptive nature of the teaching, the student will be in able to recognize and evaluate structural characteristics and dynamics competitiveness of the various research sectors in which universities, researchers and businesses. Furthermore, the student will be able to understand and judge nature

of the choices made by researchers and stakeholders involved in a project research with respect to the requirements required by public and private funding bodies.

D [Communication Skills]

The student will be able to describe and hold conversations, particularly with reference to the choices made by the research group or by the individual researcher in function of the financing scheme of the financing body.

E [Learning Skills]

- Apply the acquired knowledge to solve original problems related to research management.

Evaluation system and criteria

The assessment of the achievement of Learning Outcomes is conducted through the evaluation of E-tivities and the final Exam. The final grade is the sum of the scores obtained from the E-tivities and the Exam. The exam is passed with a minimum of 18 points (18/30).

E-tivity Evaluation

E-tivities are not mandatory but contribute to the final exam grade. The E-tivity assesses all the Learning Outcomes listed for the course, with a particular focus on Learning Skills.

Final Exam Evaluation

The exam, which can be taken either on-site (in Rome) or remotely, consists of a written test comprising exercises related to the course content. The time allocated for the exam is 90 minutes, and responses must strictly adhere to the given questions. The final exam is graded up to a maximum of 30 points (30/30, with possible honors). Clarity in presentation, both graphically and methodologically, as well as explanatory comments to justify the steps taken and enhance readability, will be considered valuable elements in the evaluation. During the exam, students are allowed to use the Theory Handouts provided by the instructor and a scientific calculator (including programmable ones). The use of electronic devices such as computers, tablets, cell phones, or any equipment that enables internet connectivity is strictly prohibited.

Bibliography and resources

Teaching Materials Provided by the Instructor

The educational materials available on the platform are organized into various sections, which include lecture notes, exercises, video lessons, and e-tivities that correspond to the module contents outlined in this syllabus.

The lecture notes provide a summary of the topics covered, which are further elaborated upon in the video lessons. For a comprehensive understanding, it is essential to watch the video lessons while taking notes on the provided lecture materials. This approach will help students thoroughly understand the topics discussed and simultaneously apply theoretical knowledge through the exercises, which are crucial for passing the final exam.

Previous exam papers are also available to help students familiarize themselves with the format of the written exam.

Recommended Educational Materials

For professional reference, it is advisable to include the following texts in your personal library:

- R. Snieder & K. Larner (2009) The art of being a scientist, a guide for scientists graduate students and their mentors, Cambridge University Press.
- J. Bronowski (1956) Science and human values. Community edition, translation by A.Guadagnin 1962