

Metodologies per a la Recerca**2012/2013**

Code: 42264

ECTS Credits: 12

Degree	Syllabus	Type	Year	Semester
4313132 Nanotecnologia i Ciència de Materials / Nanotechnology and Materials Science	1096 Nanotecnologia i Ciència de Materials / Nanotechnology and Materials Science	O	1	0

Contact

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Use of languages

Principal working language: anglès (eng)

Prerequisites

A degree in Chemistry, Physics, Materials Science, Nanoscience & Nanotechnology or related field is convenient. The student must be enrolled in the Master in Nanotechnology and Materials Science.

Objectives and Contextualisation

The Research Methodologies course is aimed at providing the students with the capabilities required to plan, manage and track a research project.

The Research Methodologies will serve as a seed to build the Master's Thesis (15 ECTS) and it is carried out under the supervision of the Master's Thesis Director.

Skills

- Demonstrate a capacity to face research problems in nanotechnology or materials science from beginning to end, from conceptual planning and bibliographic searches to oral and written presentation of the results obtained.
- Demonstrate a mastery of scientific technology and develop skills for arguing the research results in the context of scientific production to understand and interact effectively with other professionals.
- Possess and comprehend knowledge that offers the basis and opportunity to be original in the development and/or application of ideas, frequently in a research context
- Search for information in the scientific literature using the appropriate channels and integrate that information for proposing and contextualising a research topic
- Students must be capable of integrating knowledge and dealing with the complexity of formulating judgements on the basis of incomplete or limited information, including considerations of the social and ethical responsibilities associated to the application of their knowledge or judgements
- Students must know how to communicate their conclusions and final reasons sustaining the same to specialised and unspecialised audiences in a clear and unambiguous manner
- Students must possess learning abilities to enable them to continue studying in a way that will to a large extent have to be self-managed and autonomous
- Students should know how to apply the knowledge acquired and their capacity for resolution to problems in new or little known environments in broader (or multidisciplinary) contexts related with their field of study

Learning outcomes

1. Contextualise a state-of-the-art research project making efficient use of the bibliography
2. Demonstrate a mastery of scientific technology and develop skills for arguing the research results in the context of scientific production to understand and interact effectively with other professionals.
3. Possess and comprehend knowledge that offers the basis and opportunity to be original in the development and/or application of ideas, frequently in a research context
4. Propose protocols and methodology appropriate for carrying out a research project in areas related to nanotechnology or materials science
5. Search for information in the scientific literature using the appropriate channels and integrate that information for proposing and contextualising a research topic
6. Students must be capable of integrating knowledge and dealing with the complexity of formulating judgements on the basis of incomplete or limited information, including considerations of the social and ethical responsibilities associated to the application of their knowledge or judgements
7. Students must know how to communicate their conclusions and final reasons sustaining the same to specialised and unspecialised audiences in a clear and unambiguous manner
8. Students must possess learning abilities to enable them to continue studying in a way that will to a large extent have to be self-managed and autonomous
9. Students should know how to apply the knowledge acquired and their capacity for resolution to problems in new or little known environments in broader (or multidisciplinary) contexts related with their field of study

Content

The specific contents will depend on the Master's Thesis topic that the student selects.

A mini-course on legal and social aspects in nanoscience and nanotechnology is given.

Methodology

The student has to search in the scientific literature, by using the appropriate channels, and integrate of all the information gathered to plan and contextualize a research topic.

The students are required to deliver a brief report of about 10 pages by mid March (specified exactly for each year) which should reflect:

(i) The state-of-the-art of the topic/research work the student will develop during the Master's Thesis;

(ii) The planning and management of the Master's Thesis: the project goals and the planning and timing of the research tasks should be clearly outlined.

Attendance to the mini-course on the legal and social aspects in nanoscience and nanotechnology is compulsory.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Legal and social aspects in nanoscience and nanotechnology	4	0.16	6
Type: Supervised			
Supervised work	100	4	1, 3, 4, 5

Type: Autonomous				
Self-work	194	7.76	2, 6, 7, 8, 9	

Evaluation

The evaluation committee will consider the quality of the report, as well as the integration of knowledge into project planning and management.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Research Methodologies Report	100%	2	0.08	1, 2, 3, 4, 5, 6, 7, 8, 9

Bibliography

Not applicable.