

Educational plan
BASED ON ADVANCED UNIVERSITY STUDIES

1. Educational plan - 2023-2024

Mandatory disciplines	Semestrul I		Semestrul II		Examination	Credits
	course hours	seminar hours	course hours	seminar hours		
AN I						
1. Ethics And Academic Integrity	8	16			Colloquium	5
2. Methods Of Structural Characterization Of Chemical Compounds	32	24			Exam	10
3. Materials Characterization Methods	32	24			Exam	10
4. Research Methodology, Processing Of Experimental Data And Elaboration Of Scientific Materials			8	24	Colloquium	6
5. Drafting And Management Of Scientific Research Projects			12	24	Colloquium	7
6. Specialty Examination In The Field Of The Doctoral Thesis			12	24	Exam	7
Total hours and credits – 1st year	72	64	32	72		45

2. Scientific research program

Ist year			
1. Scientific research activity	x		Colloquium 5
2. Scientific research project		x	Colloquium 10
Total credits – 1st year			15
IInd year			
1. Scientific research activity	x		Colloquium 40
2. Research report no. 1		x	Colloquium 20
Total credits – IInd year			60
IIIrd year			
1. Scientific research activity	x		Colloquium 40
2. Research report no. 2		x	Colloquium 20

ROMANIAN ACADEMY
The School of Advanced Studies of the Romanian Academy
DOCTORAL SCHOOL OF CHEMICAL SCIENCES

Total credits - IIIrd year	60
Total credits	180

DISCIPLINES - GENERAL INFORMATION

1. ETHICS AND ACADEMIC INTEGRITY

The holders of the course activities: Jr. Narcis PRICOB, Dr. Habil. Marcela MIHAI

1. Identification of values and ethical concepts relevant to the process of scientific research
2. Knowledge of the ethical aspects related to research ethics, specific to a research protocol, informed consent in research
3. Ethical aspects related to the research protocol carried out on animals
4. Identifying inappropriate scientific behavior

2. METHODS OF STRUCTURAL CHARACTERIZATION OF CHEMICAL COMPOUNDS

The holders of the course activities:

- Infrared spectroscopy – ***Dr. Habil. Maria-Cristina POPESCU***
 - NMR spectroscopy – ***Dr. Călin DELEANU***
 - electronic spin resonance – ***Dr. Habil. Gabriela IONIȚĂ***
 - X-ray diffraction – ***Dr. Irina ATKINSON***
1. Knowledge of the principle of specific methods and equipment
 2. Acquiring notions regarding the types of samples and preparation methods
 3. Acquisition of theoretical and practical notions regarding specific results of each technique for the characterization of small and macromolecular compounds
 4. Interpretation of results and establishment of research conclusions

3. MATERIALS CHARACTERIZATION METHODS

The holders of the course activities:

- Microscopic techniques – ***Dr. Mihai ANASTASESCU*** (AFM), ***Dr. Jose CALDERON MORENO*** (SEM)
 - Thermal methods – ***Dr. Habil. Mihai BREBU*** (ATG), ***Dr. Habil. Liliana CSEH*** (DSC)
 - Optical methods - ***Dr. Anton AIRINEI*** (UV-Vis), ***Dr. Mariuca GARTNER*** (ellipsometry)
1. Knowing the principle of specific methods and equipment
 2. Acquiring notions regarding the types of samples and preparation methods
 3. Acquisition of theoretical and practical notions regarding specific results of each technique for materials characterization
 4. Interpretation of results and establishment of research conclusions
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4. RESEARCH METHODOLOGY, PROCESSING OF EXPERIMENTAL DATA AND ELABORATION OF SCIENTIFIC MATERIALS

The holders of the course activities: Dr. habil. Luminita MARIN

1. Understanding the methodological principles specific to scientific research; The stages of scientific research
2. Organization of the research by work stages and establishment of methods of data collection, analysis and statistical processing.
3. Interpreting the results and establishing the research conclusions according to the formulated hypothesis.
4. Presentation of experimental data. Preparing and giving a scientific presentation.
5. The methodology of developing and publishing a scientific paper.

5. DRAFTING AND MANAGEMENT OF SCIENTIFIC RESEARCH PROJECTS

The holders of the course activities: Dr. Narcisa MARANGOCI, Dr. Marcela MIHAI

1. Knowledge of the strictness and scientific standards necessary to write a research project
2. UEFISCDI website: search for project competitions, submission of project proposals
3. Structure of a project proposal, basic elements
4. Knowledge of management principles and project monitoring tools
5. The ability to design and write a scientific research project

6. SPECIALTY EXAMINATION IN THE FIELD OF THE DOCTORAL THESIS

The holders of the course activities: PhD supervisor and an experienced researcher in the field of the thesis

1. Knowledge of relevant publications specific to the field of the doctoral thesis
 2. Knowledge required for scientific research in the field of doctoral thesis
 3. Acquisition of theoretical and practical notions in the field of doctoral thesis
 4. Deepening of knowledge regarding the methods and techniques of scientific research in the field of doctoral thesis
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SCIENTIFIC RESEARCH PROGRAM

SCIENTIFIC RESEARCH ACTIVITY

Evaluation committee: PhD supervisor and members of the guidance committee

The indicators for evaluating scientific activity and study progress include:

- taking exams/reports according to the established schedule
- making scientific papers and supporting or publishing them
- participation in national or international specialized conferences and workshops
- writing book chapters
- contributions to the creation of inventions, etc.

SCIENTIFIC RESEARCH PROJECT

Evaluation committee: the PhD supervisor and two researchers with experience in the field of the thesis

- the project will include: the guidelines of the future thesis, the state of knowledge in the field, the objectives of the study, the targeted research methodology, the schedule of the planned activities, preliminary results obtained, etc.
- the presentation of the project is public; the invitation is sent by email within the institution where the project is supported

RESEARCH REPORTS

Evaluation committee: the PhD supervisor and two researchers with experience in the field of the thesis

- the two research reports contain original results obtained during PhD studies, with their discussion in the context of international research in the field
 - the PhD supervisor decides on the content and form of the research reports
 - the presentation of research reports is public; the invitation is sent by email within the institution where the project is supported
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