METHODOLOGY OF PHARMACEUTICAL SCIENTIFIC RESEARCH

1. Information about the program

1.1.	**UNIVERSITY: "GRIGORE T. POPA" UNIVERSITY OF MEDICINE AND PHARMACY OF IAŞI**
1.2.	**FACULTY: PHARMACY SCHOOL / DEPARTMENT: PHARMACEUTICAL SCIENCE I**
1.3.	**SUBJECT: ENVIRONMENTAL AND FOOD CHEMISTRY**
1.4.	**STUDY FIELD: HEALTH**
1.5.	**STUDY CYCLE: UNDERGRADUATE**
1.6.	**STUDY PROGRAMME: PHARMACY**

2. Subject data

2.1.	**SUBJECT:** METHODOLOGY OF PHARMACEUTICAL SCIENTIFIC RESEARCH						
2.2.	**Module leader:** Prof. Lenuța Profire , PhD						
2.3.	**Seminar leader:** Prof. Lenuța Profire , PhD						
2.4. Year of study	IV	**2.5. Semester in which is taught**	I	**2.6. Evaluation type**	E1	**2.7. Subject status**	Compulsory

3. Duration of the course (hours per semester)

3.1. Number of hours / week	2	**3.2. Number of hours / week**	1	**3.3.Seminar / lab**	1
3.4.Total number of learning hours	28	**3.5.Total number of learning hours**	14	**3.6. Seminar / lab**	14

3.7. Distribution of activities in the course	**hours**
Study based on the manual, printed course, bibliography and notes	7
Additional research in the library, on specialized e-platforms and field study	5
Preparation for seminars, practical courses, portfolios and essays	5
Tutoring	-
Assessment	5
Other activities	-

3.8. Number of hours of individual study		17
3.9. Number of hours per semester		50
3.10. Number of ECTS		2

4. Previous Knowledge (if applicable)

4.1. course related	Foreign languages (English, French).
4.2. skill related	Optimal level of knowledge of foreign languages.

5. Requirements (if applicable)

5.1. course conditions	Videoprojector.
5.2. seminar / laboratory conditions	Internet access.

6. Specific Skills Acquired

Professional skills displayed by knowledge and skills	• The ability to initiate and finalize a research activity (theoretical or involving an experimental part) upon which the Batchelor's thesis or other scientific paper will be edited accordingly.
Transversal skills (role skills, professional and personal skills)	• Use of theoretical knowledge in the personal research activity. • Use of the notions in new contexts. • Opening towards continuous education and research, autonomy and responsibility.

7. Course Objectives (confirmed by the grid of specific skills acquired)

7.1. General Objective	Assimilation of knowledge regarding. The stages of scientific research from choosing the research theme to the publication and respectively presentation of a scientific work.
7.2. Specific Objectives	Awareness for the need of scientific research activity in the field of medicines: • assimilation of the methodology for scientific documentation; • assimilation of the specific aspects involved when editing a scientific paper; • research ethics when experimenting on laboratory animals and on human subjects.

8. Contents

8.1. Course	**Teaching methods**	**Observations**
History of the development of science; Scientific documentation; Editing the scientific paper; Using reproductions when editing scientific papers; Research methods and techniques; Methods and techniques for research; Obstacles in scientific research; Scientific research ethics; Scientific research ethics; Grants for scientific research	Power Point presentation; Discussions based on the questions posed by students;	14 hours

Bibliography

1. Lewis GA, Mathieu D. *Pharmaceutical Experimental Design*. New York: Marcel Dekker Inc., 1999.
2. Laake P, Benestadt PB, Olsen BR. *Research Methodology in the Medical and Biological Sciences*. New York: Academic Press, London , 2007.
3. Maloy S. *Guidelines for Writing a Scientific Paper* http://www.sci.sdsu.edu/~smaloy/MicrobialGenetics/topics/scientific-writing.pdf

8.2. Seminar / Practical lessons	**Teaching Methods**	**Observations**

Choosing the research theme; Stages of research; Particular aspects concerning research in the field of medicines; Instruments of scientific research; Validation (critical reading) of the specialized literature; Quality control of the experimental results; Forms of scientific communication; Editing the scientific paper - from manuscript to „imprimatur"; Presentation of the scientific work	Seminar regarding the theoretical aspects of the practical works. Presentation of the methodology for conducting the current practical work.	14 hours

Bibliography

1. Lewis GA, Mathieu D. *Pharmaceutical Experimental Design*. New York: Marcel Dekker Inc.,1999.
2. Laake P, Benestadt PB, Olsen BR. *Research Methodology in the Medical and Biological Sciences*. New York, London: Academic Press, 2007.
3. Maloy S. *Guidelines for Writing a Scientific Paper* http://www.sci.sdsu.edu/~smaloy/MicrobialGenetics/topics/scientific-writing.pdf.

9. The agreement between the course contents and the expectations of the representatives of the epistemic communities, professional associations and employers in the field related to the program

The content of the practical works and of the theoretical course supports the formation of the student form a professional point of view and allows the student to expand his employment opportunities by orienting him towards scientific research in the field of medicines.

10. Assessment

Activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Course	General specialized knowledge.	Semester written evaluation	50%
	Interest towards new information		
10.5. Seminar / Practical lessons	Theoretical knowledge and practical abilities.	Final written evaluation for the practical works	40%
	The quality of practical results.	Continuous testing during the semester	10%
Minimal standard of proficiency: 5 is the lowest passing grade.			