

**COURSE DATA****Data Subject**

<b>Code</b>	43026
<b>Name</b>	Fundamentals of pharmacological research
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	4.0
<b>Academic year</b>	2020 - 2021

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
2138 - M.D. in Research in and Rational Use of Medicines	Faculty of Pharmacy and Food Sciences	1	First term
3103 - Biomedicine and Pharmacy	Doctoral School	0	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2138 - M.D. in Research in and Rational Use of Medicines	4 - Fundamentals of drug research	Optional
3103 - Biomedicine and Pharmacy	1 - Complementos Formación	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
CALATAYUD ROMERO, FRANCISCA SARA	135 - Pharmacology

**SUMMARY**

This optional course is offered to students of the "Master in research and rational drug use" who wish to initiate in basic research in this area.

The aim of this course is to present and analyze the different phases and aspects of the experimental research. The student would address each of them by developing a simulated research project.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

There is no registration restriction

## OUTCOMES

### 2138 - M.D. in Research in and Rational Use of Medicines

- Manejar adecuadamente las fuentes de información biomédica y poseer la habilidad de hacer una valoración crítica de las mismas integrando la información para aportar conocimientos a grupos asistenciales multidisciplinares
- Utilizar adecuadamente las herramientas informáticas, métodos estadísticos y de simulación de datos, aplicando los programas informáticos y la estadística a los problemas biomédicos
- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to make quick and effective decisions in professional or research practice.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Be able to integrate new technologies in their professional and/or research work.
- Know how to write and prepare presentations to present and defend them later.
- Ser capaces de analizar de forma crítica tanto su trabajo como el de su compañeros.
- Be able to access to information tools in other areas of knowledge and use them properly.
- To be able to assess the need to complete the scientific, historical, language, informatics, literature, ethics, social and human background in general, attending conferences, courses or doing complementary activities, self-assessing the contribution of these activities towards a comprehensive development.



- Be able to apply the research experience acquired to professional practice both in private companies and in public organisations.
- Dominar la comunicación científica. Poseer habilidades sociales y comunicativas en la práctica asistencial.
- Capacidad de seleccionar y gestionar los recursos disponibles (instrumentales y humanos) para optimizar resultados en investigación.
- Dominar el método científico, el planteamiento de protocolos experimentales y la interpretación de resultados en la búsqueda, desarrollo y evaluación de nuevos fármacos.

## LEARNING OUTCOMES

At the end of the teaching-learning process the student should be able to understand and apply the scientific method:

1. To develop a valid hypothesis based on the data obtained after the analysis and selection of different information sources on a particular topic.
2. To know the basic methodology of drug experimentation and select that most suitable for the development of his hypothesis.
3. To express results correctly, clearly and objectively.

To present and discuss the work done according to several scientific formats (oral, poster, article, review)

## DESCRIPTION OF CONTENTS

### 1. The scientific method: development of hypothesis

Introduced on the available information sources and selection criteria.

He reviewed the bibliography and selected for each student from a diverse area on which to develop the research project.

Identification of the antecedents of the project and the preparation of a legal hypothesis.

### 2. Methodological possibilities: choosing the appropriate method

Review of the available methodology for the development of an inclusive biomedical research project, both experimental models and techniques.

Introduction to experimental design and analysis of the elements that condition the validity of the results.

Tutored design of the appropriate experimental procedure for the development of the hypothesis formulated by each student in the previous unit.

Carrying out the experiments designed in the previous sections.

**3. Analysis, discussion and presentation of the results**

Introduction to the presentation, critical analysis and discussion of the results. Formats and analysis of the elements that determine their clarity / intelligibility.

Preparation, presentation and discussion of a scientific document, in the form of an article, poster or oral presentation, as a result of the simulated development of each student's personal project.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	20,80	100
Group work	9,60	100
Seminars	9,60	100
Development of individual work	24,00	0
Study and independent work	19,00	0
Readings supplementary material	12,00	0
Preparation of evaluation activities	5,00	0
<b>TOTAL</b>	<b>100,00</b>	

**TEACHING METHODOLOGY**

Theoretical classes  
Discussion of articles (readings)  
Laboratory practices  
Seminars  
Project development  
Debate or directed discussion  
Tutoring

To complete the classroom hours, the materials provided for face-to-face teaching will be adapted, so that the student can access them at any time. Use of the virtual classroom forum to answer questions. For the practical sessions of the theoretical content, the use of videoconferences and/or the realization of the proposed exercises would be combined using the "Task" option in the virtual classroom.

**EVALUATION**

Continuous assessment: 75%

Evaluation of oral presentations: 25%



It is compulsory to attend at least 80% of classes.

## REFERENCES

### Basic

- - Revisiones y artículos originales de investigación farmacológica

## ADDENDUM COVID-19

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

In the event of the establishment of sanitary measures, the following addendum will apply:

### 1. Contents

All the contents initially programmed in the teaching guide are maintained.

### 2. Workload

The volume of work and the temporary planning thereof are maintained, but, if the health emergency of COVID-19 makes it necessary, the teaching will be given in a non-face-to-face way.

### 3. Teaching methodology

- Upload to the virtual classroom of the necessary materials.
  - Both the theoretical classes and the seminars will be given on the same dates and times scheduled through synchronous BBC videoconference.
  - Use of the tools "questionnaires" and "tasks" of the virtual classroom to review concepts and promote continuous evaluation.
  - The tutorials with the students and the resolution of doubts will be carried out through email and the virtual classroom forum.
4. Evaluation The final evaluation will be the one described in the teaching guide.

### 5. Bibliography

The same bibliography recommended in the teaching guide is maintained.