



## COURSE DATA

### Data Subject

<b>Code</b>	34073
<b>Name</b>	Documentation and Scientific Methodology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	4.5
<b>Academic year</b>	2022 - 2023

### Study (s)

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Faculty of Pharmacy and Food Sciences	1	First term
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	1	First term

### Subject-matter

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	36 - Scientific methodology and documentation	Obligatory
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	1 - Asignaturas obligatorias del PDG Farmacia-Nutrición Humana y Dietética	Obligatory

### Coordination

Name	Department
LUCAS DOMINGUEZ, RUTH	225 - History of Science and Documentation

## SUMMARY

What is usually called "scientific method" is a set of theoretical and experimental practices very diverse characteristics vary over time and space and across disciplines and various fields of science. Even within a single scientific discipline, there are diverse views on the best ways to get sufficiently used to produce new knowledge. Therefore, in this block use the expression "scientific methodology" to refer to the heterogeneous set of strategies, procedures, reasoning, experimental practices, observational methods, etc. following scientists in their investigations, which are developed in a variety of places (observatories, laboratories, geological sites, hospitals, factories, etc..), often with the help of scientific instruments of very different characteristics. And all this in the context of certain societies and cultures very variable condition of the development of scientific activity over time.



In parallel to the great development and has taken on dimensions that modern science during the twentieth century, the discipline of information science has developed a range instruments for recording scientific production and facilitate rapid access to accurate information. Likewise, the large expansion that has seen the Internet as a communication and dissemination of information made available to researchers and users a lot of resources and information sources, regardless of spatial boundaries and intermediaries, so is essential from the field of training to introduce students to the knowledge and use of these tools and resources to be able to develop the skills to locate and manage the information they need or may be of interest to the exercise in their professional and research activities.

The aim of the course is to provide basic concepts and schemes to address the issue through various special cases (seminars). First, we discuss several specific topics, closely related to the pharmacy: anatomical dissection, animal experimentation and clinical trials. It is also dedicated to a specific scientific terminology along with a brief introduction to the various types of scientific instruments.

The School of Pharmacy is a pilot center of the University of Valencia for the implementation of the Sustainable Development Goals (SDG). From the Scientific Documentation and Methodology subject, we propose to incorporate the SDGs by integrating these contents into our agenda and evaluation activities. Open access to information is fundamental in any of the 17 SDGs proposed for the 2030 Agenda and especially aimed at SDGs 3 and 5 (Health and Education) in which our students and future pharmaceutical graduates would be more involved. In parallel, it is essential to offer a historical vision about the relevance of the development of the SDGs in all processes related to the creation, production, distribution and access to medicines, closely linked to one of these objectives, specifically 3 ( Health & Wellness). Also the current health situation and the controversies around vaccines - research, collaboration, patents, accessibility around the world ... - deserve a reflection that connects with this subject.

## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

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

### Other requirements

Previous requirements or recommendations

Being an introductory course, no prerequisites are required apart from skills and knowledge provided by high school studies. However, it should be noted that the theoretical and practical seminars involve the use of a great deal of abstract thinking, adoption of a diachronic analysis and dealing with various societies and cultures.

**COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)****1201 - Degree in Pharmacy**

- Development of skills to update their knowledge and undertake further studies, including pharmaceutical specialization, scientific research and technological development, and teaching.
- Ability to collect and transmit information in English with a level of competence similar to the B1 of the Council of Europe.
- Module: Legislation and Social Pharmacy ? to master information retrieval techniques related to primary and secondary information sources (including databases by using computers) and computerized.
- Module: Legislation and Social Pharmacy - Know the techniques of oral and written communication by acquiring skills that allow informing users of pharmaceutical establishments in terms intelligible and appropriate to various cultural levels and social environments.

**LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)**

We want students to think of science as a highly complex activity, related to society and the culture in which it is developed. Therefore, some aspects of the relationships between science, technology and society will be discussed, in order to offer keys that allow reflection on the working methods of science and its role in society. It aims to promote humanistic and interdisciplinary training, so that the student can favor the integration of their knowledge in a critical and autonomous way and address the analysis of situations in which knowledge of various disciplines are required.

A broad and multi-faceted vision of the different aspects that constitute the scientific methodology will be offered, as well as a discussion of a great variety of topics associated with this methodology in biomedical subjects. That is why we have articulated the agenda in four blocks: a general approach to what science is and how it works; an anthropological approach from the perspective of medicine and pharmacy; a sociological and historical approach, particularly to the pharmaceutical profession over time, as well as mechanisms for dissemination and communication of knowledge among different audiences; and, finally, a perspective from the technical particularities that intervene: scientific instruments, animal experimentation and clinical trials.

In this subject an introduction to the sources of scientific information will be made, defining the main documentary typologies, characterizing their informative usefulness and the forms of access to them. The procedures to identify and select the desired information in the systems for the provision of scientific information, identifying the main existing databases in the health sciences, and the search strategies and interrogation techniques most appropriate to identify the documents will be presented. that allow to satisfy the informative needs of the user. In addition, some of the existing tools and procedures for managing and evaluating selected documents of interest will be presented.



## **DESCRIPTION OF CONTENTS**

**1. Introducing Documentation and Scientific Methodology**

**2. The methods of Science**

**3. Science in movement: scientific revolutions**

**4. Science frontiers and the other ways of knowledge**

**5. The social construction of illness**

**6. The social life of medicines**

**7. The language of Science**

**8. The Scientific communication**

**9. Discipline and profession**

**10. Health Sciences and Gender**

**11. The consciousness of Science: Bioethics**

**12. A necessary evil: experimenting on animals**



**13. Testing therapies in humans: clinical trials**

**14. Evidence-Based Medicine**

**15. Science, Medicine, and Technology**

**16. The pharmaceutical industry**

**17. Intellectual property: patents**

**18. Needs and uses of information in Pharmacy**

**19. Primary sources of scientific information in Pharmacy**

**20. Bibliographic searches in Pharmacy**

- Design of search strategies
- Searches in Health Sciences specific databases: Pubmed and Embase
- Searches in multidisciplinary databases: Web of Science and Scopus

**21. Secondary sources of scientific information in Pharmacy: databases**

**22. Citations, impact and how to manage information in Pharmacy**



**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	25,00	100
Seminars	10,00	100
Computer classroom practice	5,00	100
Tutorials	2,00	100
Development of group work	30,00	0
Study and independent work	8,00	0
Readings supplementary material	2,50	0
Preparation of evaluation activities	25,00	0
Preparation of practical classes and problem	2,00	0
<b>TOTAL</b>	<b>109,50</b>	

**TEACHING METHODOLOGY****Theoretical teaching**

The materials for each topic will be previously posted in the Virtual Classroom (guides and readings of interest complementary to the manual of the subject). During the work session in the classroom, various participatory strategies will be presented. Discussion forums will open where students are invited to participate with questions about the session. Other activities will be questionnaires, comments on video fragments, images, or short articles. These activities will be uploaded in the Virtual Classroom at a certain time within the session and will form part of the continuous evaluation.

The activities mentioned will alternate with the comments and masterful explanations of the teaching staff supported by power point.

**Practical teaching**

Prior to the development of each practical session, a theoretical explanation of the contents to be addressed will be made. To carry out the practical sessions and seminars, computerized means will be used, and the compilation of the activities will be through the "Homework" option of the virtual classroom within the stipulated period.

The practical sessions, which must be attended, consist of 5 seminars and 2 practical computer sessions.

The seminars will be the following:

Seminar 1 UV Library

Seminar 2 Bibliographic searches



Seminar 3 Scientific article

Seminar 4 Impact and visibility of research

Seminar 5 Managing information

Computer practices will be:

Session 1: Research in specific databases in health sciences: Pubmed and Embase

Session 2: Research in multidisciplinary databases: Web of Science and Scopus.

### Group tutoring

The main objective is to offer a work technique, the "pharmaceutical pill", a short video in which the content of the subject is exposed (history of a drug, a clinical trial, women in biomedicine...) which will also be a part of the final grade. In the first tutorial session, the groups will be organized, and the evaluation rubric will be worked on. In the second session, the videos will be viewed and evaluated by teachers (10%) and students (5%).

A 80% of attendance at seminars and practices is required. Group tutoring is compulsory attendance.

In order to follow the contents of the subject, as well as to carry out the continuous assessment activities, it will be necessary to consult the manual: Ferragud C, Vidal A, Bertomeu JR, Lucas R. [Documentación y Metodología en Ciencias de la Salud](#). Valencia: Nau Llibres; 2017.

## EVALUATION

**Continuous evaluation:** up to 4.5 points out of 10 of the final grade. Evaluable activities: 1 short video (15%); 2 computer practices (10%); 5 seminars in the computer room (10%); Forum participation (10%). A 5 out of 10 is required in the final mark of continuous evaluation to make an average with the mark of the first call exam.

**First Call Exam:** up to 5.5 points out of 10 of the final grade. The exam of the Scientific Methodology block (35%) consists of a long question, the comment of an image, the comment of a fragment of a text and multiple-choice questions. The Documentation exam (20%) will consist of 14 multiple choice questions.

In the exam, a grade equal to or greater than 4 out of 10 is required to make an average with the grades obtained from the continuous evaluation.

A failure in the first call, as well as a Not presented in the exam, implies taking the second call exam that includes the contents of theoretical and practical teaching.



**Exam Second Call:** Theoretical exam (60%); Practical exam (40%). A grade lower than 4 out of 10 in any of the two parts will mean a failing grade in the subject.

## REFERENCES

### Basic

- Ferragud C, Vidal A, Bertomeu JR, Lucas R. Documentación y metodología en ciencias de la salud. Valencia: Nau Llibres; 2017.
- Ferran Ferrer N, Pérez-Montoro Gutiérrez M. Búsqueda y recuperación de la información. 1ª en lengua castellana ed. Barcelona: Editorial UOC; 2009
- Fara P. Breve historia de la ciencia. Barcelona: Ariel; 2009.
- Bowler P, Morus I. Panorama general de la ciencia moderna. Barcelona: Crítica; 2007
- Collins H et al. El gólem: lo que todos deberíamos saber acerca de la ciencia. Barcelona: Crítica; 1996
- Cordon García JA. Las nuevas fuentes de información: información y búsqueda documental en el contexto de la web 2.0. Madrid: Pirámide; 2010.

### Additional

- Informe APEI sobre acceso abierto | E-LIS. E-prints in Library and Information Science Disponible en: <http://eprints.rclis.org/handle/10760/12507>. Fecha de acceso 5/31/2011, 2011.
- Cordon García JA, López Lucas J, Vaquero Pulido JR. Manual de investigación bibliográfica y documental: teoría y práctica. Madrid: Pirámide; 2001.
- Cordon García JA, López Lucas J, Vaquero Pulido JR. Manual de búsqueda documental y práctica bibliográfica. Madrid: Pirámide; 1999
- Hernández Sampieri R, Fernández Collado C, Baptista Lucio P. Metodología de la investigación. 5a ed. Madrid: McGraw-Hill; 2010
- Jiménez Villa J, Argimón Pallás JM, Martín Zurro A. Publicación científica biomédica: cómo escribir y publicar un artículo de investigación. Barcelona: Elsevier Science; 2010
- Pinto Molina M, Mitre M, Doucet A, Sánchez MJ. Aprendiendo a resumir: prontuario y resolución de casos. Gijón: Trea; 2005