

**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>	2017 - 2018

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1201 - Degree in Pharmacy	Faculty of Pharmacy and Food Sciences	1	First term
1211 - D.D. in Pharmacy-Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	1	First term

**Subject-matter**

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

**Coordination**

<b>Name</b>	<b>Department</b>
VIDAL INFER, ANTONIO MARTÍN	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.

## 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, especially in the Western tradition. Moreover, it involves and the use of documentary sources and resources in electronic format, invo

## OUTCOMES

## LEARNING OUTCOMES

This course will be an introduction to the sources of scientific information, defining the main types of documents, characterizing their informative and useful ways to access them. Shall set forth the procedures for identifying and selecting the desired information in the supply systems of scientific information by identifying the major databases in health sciences, and search strategies and more appropriate interrogation techniques to identify documents that satisfy the information needs of the user. We will discuss some of the tools and procedures to manage and evaluate relevant documents selected. Thus, several issues related to scientific methodology in biomedical sciences will be shown: scientific terminology, anatomical dissection, scientific instruments, animal experiments and clinical trials. In the practical sessions, some of the most important scientific research will be shown, described as the protagonists, so that it is possible to approach "science in action." It is also intended to show the connections and interactions between science, society and culture. Thus, we will discuss some aspects of the relationship between science, technology and society. The aim is to offer clues that allow reflection on the methods of science and its role in society, thereby providing a humanistic and interdisciplinary approach, so that students can foster the integration of knowledge and approach the analysis of situations which require knowledge of several disciplines.



## DESCRIPTION OF CONTENTS

### 1. Information sources in Health Sciences

Introduction to scientific literature  
Information sources and documental typologies  
Bibliography: Vancouver citation style  
Abstracting

### 2. Databases and Internet scientific resources in Health Sciences

The University of Valencia library  
Multidisciplinary databases  
Health Sciences databases  
Scientific resources in Internet  
Open access to scientific literature in Health Sciences

### 3. Scientific methodology: measure systems, instruments and units

General introduction: Science methods  
Observation and experimentation  
Measure systems  
Units and magnitudes  
Units conversion  
Error calculation

### 4. Scientific terminology

Scientific communication  
Terminology origins  
Main types of terms  
Semantic problems  
Translation  
Terminologic normalization  
Thesaurus

### 5. Animal experimentation and clinical trials

Animal experimentation  
Clinical trials I: definition, aims and types. Placebo effect and sample selection  
Clinical trials II: phases and legislation

**6. Science, medicine and society**

Science, medicine and technology  
Evidence based medicine  
Science, medicine and industry

**7. Professions and scientific disciplines**

Scientific disciplines  
Biomedical professions  
Scientific literature: specialized articles. Manuals and reference works. Divulcation works. Science and its audience  
Scientific article

**8. Scientific revolutions**

Scientific revolution concept  
The structure of scientific revolution. Paradigms. Normal science  
Scientific controversies: characters, spaces, motivations and closure

**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**

The development of the course is structured around four types of activities in addition to research activities, preparation of classes and final exam: the lectures, practical classes in the classroom, computer practical classes and tutorials.



**Lectures.** Students must acquire basic knowledge on the agenda through self-study and attendance at the lectures. In these classes, the teacher will give an overview of the topic, have an impact on those key concepts for the understanding of it and answer any questions or issues. For individual study and preparation of the subject in depth, they provide students with a basic and additional bibliography, addresses, Internet and support material, as well as instructions and tips for handling information sources.

**Practical lessons in the classroom.** Activities that will be developed to complement the knowledge acquired in lectures, through exercises that will complete an **activity book** that should be done individually for presentation to the completion of the course. A part of the lessons will be completed at the computer classroom. The attendance to the practical sessions is mandatory.

**Seminars.** Five monographic seminars will be conducted in the computer room. The theoretic-practical contents of the course will be applied through the knowledge of the information resources of the University of Valencia, the control of a bibliographic manager, the reading and analysis of a scientific article, the analysis of pharmacological terms and the discovery of the pharmaceutical industry functioning. The results will be assessed through a set of activities that will be included in the workbook. The attendance to the seminars is mandatory.

**Tutorials.** Students will come to them in small groups. In them, students will focus on methods of work more to improve learning achievement and completion of the activity book. The attendance to the tutorial sessions is mandatory.

## EVALUATION

The assessment of student learning takes into account all the aspects outlined in the methodology section of this guide and will take place through the activity book and a final exam:

- **Final exam:** There will be a final exam will represent 50% of the grade. It will be necessary to obtain a minimum score of 4 in the exam.
- **Workbook:** must be submitted at the end of the course and will involve 40% of the total assessment. The workbook will include the different exercises that have been developed in both computer sessions and seminars. It will be necessary to obtain a minimum score of 4 in the workbook to pass the course.
- **Tutorials:** the developed work will be submitted before the specified deadline and will represent 10% of the final grade.

In addition, a voluntary and complementary task might be proposed, with a maximum score of 0,3.





Adicionalment, el professorat podrà proposar la realització d'alguna activitat complementària, de caràcter voluntari, que tindrà una puntuació màxima de 0,3 punts.

The presentation of exercises, questions, activities, reading cards and other exercises submitted for evaluation have not been **made directly by the student** or coming from **direct copying** of other similar works will be considered sufficient reason to hold the course, the Apart from other possible actions of a discipline to be undertaken. **The presentation of the obligatory duties solely through the virtual classroom platform of the subject**, not accepting other means of presentation, and always in due time. **The delayed submission involves not pass the course in that call.** In case of working in groups of two people in all the practical sessions, each member will present the workbook, where both names will be mentioned, as well as the work organization inside the group

The grades of work and approved tests for students who have not passed the entire subject in the first call of course, may be preserved until the next, but always within the same academic year.

## REFERENCES

### Basic

- Cordón García JA. Las nuevas fuentes de información: información y búsqueda documental en el contexto de la web 2.0. Madrid: Pirámide; 2010.
- 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.
- Harry Collins et al. El gólem: lo que todos deberíamos saber acerca de la ciencia. Barcelona: Crítica; 1996.

### 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.
- Cordón García JA, López Lucas J, Vaquero Pulido JR. Manual de investigación bibliográfica y documental: teoría y práctica. Madrid: Pirámide; 2001.
- Cordón 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.