COURSE DATA

Data Subject	
Code	34073
Name	Documentation and Scientific Methodology
Cycle	Grade
ECTS Credits	4.5
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
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

Degree	Subject-matter	Character
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

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.

OUTCOMES

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

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
TOTAL	**109,50**	

TEACHING METHODOLOGY

Theoretical classes

The materials for each topic will be previously posted in the virtual classroom (guides and readings of interest complementary to the subject manual). During the work session in the classroom, various participatory strategies will be presented. Discussion forums will be opened where students are invited to participate with questions about the session. Other activities will be quizzes, comments on video clips, 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 aforementioned activities will alternate with comments and magisterial explanations from the teaching staff supported by power point.

Students will have to elaborate three essays and a short video from the theoretical contents indicated by the professors. Students must show what they have learned through the readings and previous work carried out, the contributions of their colleagues in the forum and personal reflection. Direct copying of any material will be punished. The students will receive individualized comments and the essays will show a student evolution, thus reinforcing the idea of continuous assessment.

Practical classes

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, computer media will be used and the activities will be compiled through the "Tasks" option of the virtual classroom within the stipulated period.

The practical sessions, of compulsory attendance, consist of 5 seminars and 2 practical sessions of computer science.

The seminars will be the following:

Seminar 1 UV Library

Seminar 2 Searches

Seminar 3 Scientific article

Seminar 4 Impact and visibility of research

Seminar 5 Manage information

The computer practices will be:

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

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

Group tutoring

The main objective is to offer a working technique, the concept map, and end up configuring one of the theme that has been developed, and which will also be part of the final grade.

For the monitoring of the contents of the subject, as well as the realization of the activities of the continuous evaluation, the consultation of the manual will be required: Ferragud C, Vidal A, Bertomeu JR, Lucas R. *Documentación y Metodología en Ciencias de la Salud*. Valencia: Nau Llibres; 2017. This book can be consulted in different libraries of the UV, and can be purchased at https://naullibres.com/libro/documentacion-y-metodologia-ciencias-la-salud

EVALUATION

It will be necessary to obtain a minimum grade of 5 out of 10 in order to pass the subject.

-Itinerary Continuous evaluation: The learning of the students will be evaluated around the two types of teaching modalities described:

1) Evaluation by teachers: evaluation modality that involves a process by which the teacher, through questionnaires or on-line essays and the performance of practices by the student, will assess the knowledge acquired by the students.

2) Student self-assessment: the system by which students analyze and assess their own activities by completing the online questionnaires allows them to be aware during the semester of the evolution of their learning.

Activities: 3 essays referring to theoretical teaching (30%); 1 short video (10%); 2 Computer internships (20%); 5 Seminars in the computer room (20%); Concept maps (10%); Forum participation (10%). A 5 out of 10 is required in each of the aforementioned activities to average the final grade for the course. Failure to present any activity will result in the grade of Not Presented in the final grade for the course.

-Itinerary final exam: Theoretical exam (60%); Practical exam (40%). A grade lower than 4 out of 10 in either of the two parts will mean a failed 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
- Cordón 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.

- 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

ADDENDUM COVID-19

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

1. Contents

The contents initially included in the teaching guide are maintained

2. Volume of work and temporal planning of teaching

The workload for the student is maintained, derived from the number of credits, but the methodology of the activities changes with respect to the teaching guide, due to the current situation that makes it necessary to adopt a hybrid teaching model

3. Teaching methodology

• Theoretical teaching: They will be face-to-face and in accordance with the course calendar, but with the appropriate modifications to comply with the safety regulations against CoVid19. In the event that the classroom capacity does not allow the presence of the entire group of students, the students will be distributed by groups, so that 50% will be in the Faculty classroom while the other 50% will connect online (from home), alternating their attendance for weeks. The class will always be held following the schedule (date and time) approved by the Center Board

• Tutorials and Seminars: They will all be face-to-face according to the dates set by the course calendar

• Practical classes: They will be face-to-face and in accordance with the course calendar, but with the appropriate modifications to comply with the security regulations against CoVid19, limiting the capacity of laboratories and computer rooms to 50%, establishing attendance shifts in each group. Audiovisual material will be used to cover the non-face-to-face teaching of the sessions, the students will be supplied with data to perform calculations or any other material that allows complementing what was seen in the laboratory sessions.

If there were a worsening of the situation or a state of total confinement, all face-to-face teaching would be carried out online with synchronous teaching.

4. Evaluation

If the evolution of the current pandemic allows it, it will be face-to-face and in the terms indicated in the teaching guide. Only in case this is not possible, the evaluation will be carried out online, using multiple-choice questions in the virtual classroom that can be complemented with short questions and / or on certain occasions through an oral exam via videoconference.

The relative weight of theory, practices and seminars is maintained as indicated in the teaching guide