

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

Code	33998
Name	Documentation and Scientific Methodology
Cycle	Grade
ECTS Credits	4.5
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	2 Second term

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	28 - Scientific methodology and documentation	Obligatory

Coordination

Name	Department
FERRAGUD DOMINGO, CARMEL	225 - History of Science and Documentation
RIUS LEIVA, CRISTINA	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. As didactic tools, supplementary activities (tutoring) and the analysis of some case-studies (seminars) will be carried out. So, some topics related with methods in biomedicine will be discussed, closely related to the nutrition: 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

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, involving the formation of an acquisition of cri

OUTCOMES

1103 - Degree in Food Science and Technology

- Realizar la comunicación de manera efectiva, tanto en forma oral como escrita, con las personas, los profesionales de la salud o de la industria y los medios de comunicación, sabiendo utilizar las tecnologías de la información y la comunicación.
- Conocer, valorar críticamente y saber utilizar y aplicar las fuentes de información relacionadas con la tecnología de alimentos.
- Adquirir la formación básica para la actividad investigadora, siendo capaces de formular hipótesis, recoger e interpretar la información para la resolución de problemas siguiendo el método científico.
- Capacidad de manejar el inglés como vehículo de comunicación científica con un nivel de competencia similar al B1 del Consejo de Europa.



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

- 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

cientific 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 communication: transmission of scientific knowledge. Present defeats. Models, ways, and social agents involved in the popularization of science
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
TOTAL	109,50	

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 have to be presented individually in the terms established by the professors.

that should be presented individually to the completion of the course. A part of the lessons will be completed at the computer classroom. Attendance will be 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: supplementary activity. Attendance will be 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 practical activities, the conceptual map 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 5 in the exam.
- **Public presentation of work in Coordinated Seminars:** Students will conduct a research monograph, which will mean 10% of the final grade. Students are reminded of the obligation to attendance to the coordinated seminars. Failure to attend to them without justification will be a zero in the evaluation section of corresponding seminars.
- **Workbook and practice:** must be submitted at the end of the course and will involve **40%** of the total assessment. It will be necessary to obtain a minimum score of 5 in the workbook. Computer science practical sessions will be kept for only to the next year.

Evaluation of a Supplementary activity . (10%) 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.**

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

- Ferragud Domingo C, Vidal Infer A, Bertomeu Sánchez JR, Lucas Domínguez R. Documentación y metodología en Ciencias de la Salud. Valencia: Nau Llibres; 2017.
- Cordon 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.
- Chalmers A. ¿Qué es esa cosa llamada ciencia? Madrid: Siglo XXI; 1992.
- Bernabeu Mestre, Josep et al. Investigación e innovación en la ciencia de la nutrición: el abordaje de la malnutrición en el contexto de la cultura científica. Sant Vicent del Raspeig, Club Universitario, 2008.
- Gutiérrez Rodilla B. La ciencia empieza en la palabra. Análisis e historia del lenguaje científico. Barcelona: Península; 1998.
- Latour B. La ciencia en acción, Barcelona: Labor; 1992.
- Pilcher, Jeffrey M., (ed.). The Oxford Handbook of Food History. Oxford University Press, 2012, 560 pp
- González Sagrado, Manuel et al. Investigación y nutrición clínica, aspectos técnicos y legales. Madrid, Díaz de Santos, 2012 [recurs electrònic]
- Miján de la Torre, Alberto. Técnicas y métodos de investigación en nutrición humana. Barcelona : Glosa, 2002