

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

<b>Code</b>	33998
<b>Name</b>	Documentation and Scientific Methodology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	4.5
<b>Academic year</b>	2021 - 2022

**Study (s)**

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

**Subject-matter**

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

**Coordination**

<b>Name</b>	<b>Department</b>
FERRAGUD DOMINGO, CARMEL	225 - History of Science and Documentation
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. As didactic tools, conceptual maps (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
<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 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: the conceptual map. 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 conceptual map** from a methodological theme of the subject. **(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.** In case of working in groups of two people in all the practical sessions, 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

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- Fara P. Breve historia de la ciencia. Barcelona: Ariel; 2009.
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### 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.
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- Pinto Molina M, Mitre M, Doucet A, Sánchez MJ. Aprendiendo a resumir: prontuario y resolución de casos. Gijón: Trea; 2005.
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- 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.
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- 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

### 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. Content

The contents initially included in the teaching guide are maintained.

#### 2. Workload and temporal planning of education

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



### 3. Teaching methodology

- **Theoretical teaching:** it will be carried out through synchronous sessions (synchronized video-conference on the BBC, or other technology indicated by the Faculty) and face-to-face sessions. The distribution of students will be done by groups, so that 50% will be in the Faculty lecture hall while the other 50% will go online, alternating their attendance week by week. The college class will always be held following the schedule (date and time) approved by the Faculty Board.
- **Tutorials:** All of them will all be face-to-face according to the dates set by the academic calendar
- **Coordinated or uncoordinated seminars:** The coordinated or uncoordinated seminars will all be face-to-face according to the dates set by the academic calendar.
- **Practical classes:** Computing practices of Documentation will be carried out online.

If a state of total lockdown would occur, all face-to-face teaching would be carried out online.

### 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 via the virtual classroom through tasks or online questionnaires with single or multiple choice questions, which can be complemented with short questions and / or on certain cases through an oral exam using video conferencing.

Because of the pandemic situation, the relative weight of theory, practices and seminars is modified in order to give more weight to the practical part. These changes are presented in the following addendum to the teaching guide:

#### ADDENDUM TO THE TEACHING GUIDE FAILING OF ITS APPROVAL BY THE ACADEMIC COMMISSION OF DEGREE

*The weight of the different evaluation activities included in the original teaching guide is modified: preparation of a **concept map (10%)**, **computer practices and non-coordinated seminars (40%)**, the **coordinated seminar (10%)** and a **final exam (40 %)**.*