Information about the subject

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 340403 **Name:** Laboratory of Research Methodology

Credits: 3,00 **ECTS Year:** 4 **Semester:** 1

Module: Social Medicine, Communication Skills and Initiation to Research

Subject Matter: Research inicialization **Type:** Compulsory

Field of knowledge: Health Science

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Social Medicine, Communication Skills and Initiation to Research

Subject Matter	ECTS	Subject	ECTS	Year/semester
Communication Skills	3,00	Laboratory of Clinical Interview and Communication Skills	3,00	3/1
Social Medicine	15,00	Family and Community Medicine	3,00	5/2
		Legal Medicine and Toxicology	6,00	5/1
		Preventive Medicine and Public Health	6,00	4/2
Research inicialization	9,00	History of Medical Science, and Medical Documentation and Terminology	6,00	2/1
		Laboratory of Research Methodology	3,00	4/1
Statistics	6,00	Biostatistics	6,00	1/2
Ethics and professional issues	12,00	Bioethics and Medical Deontology	6,00	4/1
		Science, Reason and Faith	6,00	2/2
Health management	3,00	Healthcare Management	3,00	4/1
English	6,00	Medical English	6,00	1/1
Ethics	6,00	Ethics and Social Morality	6,00	2/1
Antropology	6,00	Medical Anthropology	6,00	1/1

Recommended knowledge

This subject does not have any prerequisites.

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1	Know, critically value and know how to use technologies and sources of clinical and biomedical information, to obtain, organize, interpret and communicate clinical, scientific and health information.
R2	Know the basics of biostatistics and its application to the medical sciences. Be able to design and perform simple statistical studies using computer programs and interpret the results.
R3	Know the history of health and disease.
R4	Know the existence and principles of alternative medicines.
R5	Operate a personal computer with autonomy. Use biomedical information search and retrieval systems.
R6	Know and manage clinical documentation procedures. Understand and critically interpret scientific texts. Know the principles of the scientific method, biomedical research and clinical trial.
R7	Know the principles of telemedicine.
R8	Know and manage the principles of medicine based on (best) evidence.
R9	Have criteria to select sources of information in Health Sciences in the bibliographic review phase of a research process. He knows how to search for scientific information and critical readings of it. Learn about the differences between original articles and the different types of review articles.
R10	Knowing how to apply the Research Methodology to case studies, including: formulation of hypotheses and objectives, population selection, type of design, selection of appropriate controls, collection and recording of data; analysis and interpretation of them.
R11	Learn about the ethical principles of biomedical research and know how to apply them in the design of research proposals. Learn what Informed Consent is and how it should be used in the context of scientific research.
R12	Knowing how to practice the different types of written and oral scientific communication.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study				x
CB2	Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of ??study				x
CB3	Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics				x
CB4	Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience				x
CB5	Students have developed the learning skills needed to undertake further studies with a high degree of autonomy				x

GENERAL		Weighting			
		1	2	3	4
CG1	Recognizing the essential elements of the medical profession, including ethical principles, legal responsibilities, and patient-centered professional exercise	x			
CG2	Understanding the importance of such principles for the benefit of the patient, society and profession, with special attention to professional secrecy	x			

CG5	Recognizing the limitations themselves and the need to maintain and update their professional competence, giving special importance to the autonomous learning of new knowledge and techniques and to the motivation for quality	x			
CG28	Obtaining and using epidemiological data and assess trends and risks for health decision-making	x			
CG29	Knowing national and international health organizations and the environments and conditions of different health systems	x			
CG30	Basic knowledge of the National Health System and health legislation	x			
CG31	Knowing, critically valuing and knowing how to use the sources of clinical and biomedical information to obtain, organize, interpret and communicate scientific and health information				x
CG32	Knowing how to use information and communication technologies in clinical, therapeutic, preventive and research activities				x
CG33	Maintaining and using records with patient information for further analysis, preserving data confidentiality			x	
CG34	Having, in professional activity, a critical, creative point of view, with constructive and research-oriented skepticism				x
CG35	Understanding the importance and limitations of scientific thinking in the study, prevention and management of diseases				x
CG36	Being able to formulate hypotheses, critically collect and evaluate information for problem solving, following the scientific method				x
CG37	Acquiring basic training for research activity				x

SPECIFIC		Weighting			
		1	2	3	4
CE19	Knowing, critically valuing and knowing how to use technologies and sources of clinical and biomedical information, to obtain, organize, interpret and communicate clinical, scientific and health information			x	
CE22	Knowing the history of health and disease	x			
CE24	Operating a personal computer with autonomy. Using biomedical information search and retrieval systems				x
CE25	Knowing and managing clinical documentation procedures				x

CE26	Understanding and critically interpreting scientific texts				x
CE27	Knowing the principles of the scientific method, biomedical research and clinical trial				x
CE28	Knowing the principles of telemedicine			x	
CE29	Knowing and managing the principles of medicine based on (best) evidence			x	

TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Analytical and synthesis capacity				x
CT2	Planification and organization capacity				x
CT3	Oral and written communication in mother language				x
CT4	Foreign language knowledge			x	
CT5	Informatics knowledge		x		
CT6	Manage information capacity			x	
CT7	Solving problems			x	
CT9	Team work				x
CT12	Interpersonal relationship skills	x			
CT14	Critical reasoning				x
CT15	Ethical commitment				x
CT17	New situations' adaptation		x		
CT22	Motivation for quality			x	

CT31	Show sensitivity to personal, environmental and institutional injustices	x		
CT33	Knowing how to get relevant information from personal interviews	x		

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
	27,00%	Open questions
	33,00%	Tests
	10,00%	Presentations
	25,00%	Work
	5,00%	Participation in class

Observations

MENTION OF DISTINCTION:
According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 (“Sobresaliente”). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M2	Problems resolution and practical cases
M4	Content presentations by teacher
M5	Knowledges and skills explanation
M7	Oral presentation by student
M8	Group activities supervised by professor
M9	Knowledge acquirance through student interaction and activity
M11	Personalised attention by professor
M12	Tests to understand the level of knowledge acquirance and skills
M13	Written work
M14	Online activity on e-learning
M15	Personal study
M16	Information research
M17	Discussion and solving issues in group
M19	Group work for searching, discussion and information research

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theory class M2, M4, M5, M7, M9	R1, R2, R3, R4, R5, R6, R7	21,20	0,85
Seminar and group practices M2, M8, M17, M19	R8, R9, R10, R11, R12	5,70	0,23
Practices in small groups M2, M8, M17, M19	R8, R9, R10, R11, R12	2,00	0,08
Tutoring M11	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12	0,55	0,02
Evaluation M7, M12, M13, M14	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12	0,55	0,02
TOTAL		**30,00**	**1,20**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
No attendance M2, M9, M13, M14	R8, R9, R10, R11, R12	45,00	1,80
TOTAL		**45,00**	**1,80**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
SECTION I: The scientific method	1. Introduction to the scientific method. Hypothesis and objectives statement. Variables, controls, bias and limitations of a study.
SECTION II: The scientific article	**2.** Structure of a scientific paper. Types. The peer-review and publication process. Other types of scientific communication. Critical Readings of Scientific Manuscripts.
SECTION III: Basic and pre-clinical research	**3.** Identification of a “good” research question. Bibliographic background of the research topic. Study designs. The writing of a Research Proposal. Funding sources. Disease models for research. Biobanking in biomedical research. Translation of basic research results to the Clinic.
SECTION IV: Drug development	**4.** Identification of molecular targets and validation of drug candidates. Studies of efficacy, security and manufacturing of drugs.
SECTION V: Clinical trials	**5.** Clinical trials: types, randomization, blinding techniques and sample size selection. Ethic and Legal aspects of Human Clinical Research.
SECTION VI: The Research Proposal	**6.** Writing a Research Project in Health Sciences.

Temporary organization of learning:

Block of content	Number of sessions	Hours
SECTION I: The scientific method	1,00	2,00
SECTION II: The scientific article	2,00	4,00
SECTION III: Basic and pre-clinical research	4,00	8,00
SECTION IV: Drug development	1,00	2,00
SECTION V: Clinical trials	5,00	10,00
SECTION VI: The Research Proposal	2,00	4,00

References

MAIN BIBLIOGRAPHY

Laporte JR: Principios básicos de investigación clínica, 2001. Fundació Institut Català deFarmacología (https://www.icf.uab.cat/assets/pdf/productes/llibres/pbic.pdf).

ADITIONAL BIBLIOGRAPHY

Argimón Pallás JM, Jiménez Villa J. Métodos de investigación clínica y epidemiológica. 3ª ed. Madrid: Elsevier; 2004.

Cordón García JA et al. Manual de investigación bibliográfica y documental: teoría y práctica. Madrid: Pirámide; 2001.

Fletcher RH. Epidemiología clínica: aspectos fundamentales. 2ª ed. Barcelona: Elsevier Masson; 2007.

Jadad AR. Randomised controlled trials: a user's guide. London: BMJ Books; 2002.

Mabrouki K, Bosch F. Redacción científica en biomedicina: lo que hay que saber. Barcelona: Fundación Dr. Antonio Esteve; 2007

Martínez-Almagro A, Aleixandre Benavent R, Fernández Aparicio T, Ríos Díaz JN, Coy M. Terminología, método científico y estadística aplicada en Ciencias de la Salud. Murcia: Morphos Ediciones; 2007.

Prellezo JM, García JM. Investigar: metodología y técnicas de trabajo científico. Madrid: CCS; 2006.

Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

[X] Microsoft Teams

[ ] Kaltura

Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☐ Microsoft Teams

☐ Kaltura

Explanation about the practical sessions:

2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

[X] The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

[ ] The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: