UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: BIOTATISTICS: FUNDAMENTALS AND APPLICATIONS IN MED
Type: BASIC
Degree: 332 - UNDERGRADUATE DEGREE PROGRAMME IN MEDICINE
Center: 9 - FACULTY OF MEDICINE OF CIUDAD REAL
Year: 1
Main language: Spanish
Use of additional languages:
Web site:

Code: 34308
ECTS credits: 6
Academic year: 2023-24
Group(s): 20
Duration: C2
Second language:
English Friendly: Y
Bilingual: N

Lecturer: **MARIANO AMO SALAS** - Group(s): **20**				
Building/Office	**Department**	**Phone number**	**Email**	**Office hours**
Facultad de Medicina / 1.35	MATEMÁTICAS	926295300 ext.6843	Mariano.Amo@uclm.es	6 hours per week, which will be established at the beginning of the teaching.

Lecturer: **FRANCISCO JAVIER GOMEZ ROMERO** - Group(s): **20**				
Building/Office	**Department**	**Phone number**	**Email**	**Office hours**
Facultad de Medicina / 1.28	CIENCIAS MÉDICAS		FJavier.Gomez@uclm.es	

2. Pre-Requisites

The requirements to access the degree.

3. Justification in the curriculum, relation to other subjects and to the profession

The course "Biostatistics: Fundamentals and Application in Medicine" belongs to Module II (Social Medicine, Communication Skills and Initiation to Research) and to Subject 2.3 (Introduction to Research in Medicine). It is a basic course, with 6 ECTS and is taught during the second semester of the first year.

Within the subject Social Medicine, Communication Skills and Initiation to Research, the course Biostatistics: Fundamentals and Application in Medicine aims to introduce the student to scientific research through the contents of Biostatistics and Epidemiology. These contents are necessary due to their appearance in different courses of the degree and are essential for the correct development of the Final Degree Project. In the same way, this course allows developing the ability to read, understand and know how to correctly interpret scientific articles where these concepts and techniques appear, which are numerous in the medical profession.

It is essential to have passed the course of Biostatistics: Fundamentals and Application in Medicine to be able to pass the course of Preventive Medicine and Public Health.

4. Degree competences achieved in this course

Course competences

Code	Description
2.24	Epidemiology.
2.25	Demography.
2.31	To know, critically evaluate and know how to use the technologies and sources of clinical and biomedical information to obtain, organize, interpret and communicate clinical, scientific and health information.
2.32	To know the basic concepts of biostatistics and its application to medical sciences.
2.33	To be able to design and perform simple statistical studies using computer programs and interpret the results.
2.34	Understand and interpret statistical data in the medical literature.
2.37	Handle with autonomy a personal computer.
2.40	Understand and critically interpret scientific texts.
2.41	Know the principles of the scientific method, biomedical research and clinical trials.
2.42	Know the principles of telemedicine.
2.43	Know and manage the principles of (best) evidence-based medicine.
2.48	Make an oral and written public presentation of scientific papers and/or professional reports.
CT01	Proficiency in a second foreign language at level B1 of the Common European Framework of Reference for Languages.
CT02	Knowledge of Information and Communication Technologies (ICT).
CT03	Good oral and written communication skills.
G05	Recognize their own limitations and the need to maintain and update their professional competence, giving special importance to autonomous learning of new knowledge and techniques and motivation for quality.
G31	To know, critically evaluate and know how to use the sources of clinical and biomedical information to obtain, organize, interpret and communicate scientific and health information.
G32	Know how to use information and communication technologies in clinical, therapeutic, preventive and research activities.
G35	Understand the importance and limitations of scientific thinking in the study, prevention and management of diseases.
G36	To be able to formulate hypotheses, collect and critically evaluate information for problem solving, following the scientific method.
G37	To acquire the basic training for research activity.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Learning to design and organize the work. Acquiring habits of perseverance in the study.

Acquisition of oral and/or written presentation and communication skills.

6. Units / Contents

Unit 1: Descriptive Statitics and Probability

Unit 2: Basics of Inferential Statistics

Unit 3: Parametric and Non-Parametric Tests

Unit 4: Analysis of Variance. Introduction to Survival Analysis

Unit 5: Epidemiology

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (practical) [ON-SITE]	Problem solving and exercises		0.4	10	Y	Y	
Class Attendance (theory) [ON-SITE]	Lectures		0.6	15	Y	Y	
Progress test [ON-SITE]	Assessment tests		0.1	2.5	Y	Y	
Final test [ON-SITE]	Assessment tests		0.1	2.5	Y	Y	
Computer room practice [ON-SITE]	Practical or hands-on activities		0.2	5	Y	Y	
Project or Topic Presentations [ON-SITE]	Guided or supervised work		0.6	15	Y	Y	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises		0.4	10	Y	Y	
Writing of reports or projects [OFF-SITE]	Self-study		0.18	4.5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study		2.56	64	Y	N	
On-line Activities [OFF-SITE]	Problem solving and exercises		0.06	1.5	Y	N	
Other off-site activity [OFF-SITE]	Self-study		0.8	20	Y	N	
Total:			**6**	**150**			
Total credits of in-class work: 2.4				**Total class time hours: 60**			
Total credits of out of class work: 3.6				**Total hours of out of class work: 90**			

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Progress Tests	50.00%	0.00%	
Final test	20.00%	70.00%	
Practicum and practical activities reports assessment	25.00%	0.00%	
Assessment of active participation	5.00%	0.00%	
Final test	0.00%	30.00%	
Total:	**100.00%**	**100.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

A student enrolled for the first time in a subject is entitled to two calls during the academic year:

1. Ordinary call: it comprises the continuous evaluation of all theoretical and practical activities reflected in the timetable attending to the conditions described in the teaching guide of the subject and the minimum attendance requirements to pass the subject.

2. Extraordinary call: It includes the evaluation exclusively of the failed part of the subject in the ordinary call. It consists of a theoretical exam and/or a practical exam. The rest of the marks of the practical part will be those obtained during the course in reports, seminars, presentations, assignments, participation and attitude.

In case of failing the course the first time it is taken, for the following academic year there will be two of this three options:

1. Ordinary call: within this call, two modalities can be chosen:

a. Attendance mode: It includes the continuous evaluation of all theoretical and practical activities reflected in the timetable, complying with the conditions

described in the teaching guide of the subject, as if the subject was taken for the first time. Thus, the grades obtained in the previous year will not be taken into account.

b. Non-attendance mode: It includes the evaluation of only the failed part of the subject in the previous course through a theoretical exam and/or a practical exam per semester on the same date as the final exam of each semester. The marks for practical exams other than the practical exam will be kept from the previous course. This modality can only be chosen in the case of having taken the subject in the ordinary call in the previous academic year.

2. Extraordinary call: It includes the evaluation of only the failed part of the subject in the ordinary call either of the current academic year, if the student has chosen the ordinary on-site call, or of the previous academic year, in the rest of the cases. It will consist of a theoretical and/or a practical exam. The rest of the marks of the practical part will be those of the current or previous course. In the case of not having taken the ordinary on-site exam in the current or previous academic year, the grades of previous exams will not be taken into account, since only one course will be kept.

3. Special final exam: This includes the evaluation of only the failed part of the subject in the previous academic year. This call can only be requested in key subjects. It will consist of a theoretical exam and/or a practical exam. The rest of the marks of the practical part will be those of the previous course. In the case of not having taken the ordinary on-site exam in the current or previous course, the grades of previous exams will not be taken into account since only one course will be kept.

These conditions will only be maintained in the academic year consecutive to the ordinary on-site call of a subject. The grade of the practical or theoretical part passed will only be kept if the minimum attendance requirements to pass the subject described in the electronic guide have been met.

If the subject is not passed in the second academic year, the same biannual cycle criteria described for the first and second year of enrollment will be followed in the third and successive odd numbered years of enrollment.

ORDINARY CALL:
Theoretical evaluation:
70% distributed in:
- 50% module exams
- 20% final semester exams
To pass the course it will be necessary to obtain 40% of this 70%, which means, at least, 2.8 points in the theoretical part of the 10 total points of the course and to fulfill the requirements of the section "Evaluation criteria".
For the module exams (50% of the grade, i.e. 5 points) no minimum grade is established, so all grades obtained will be added together.
For the final exams (20% of the grade, i.e. 2 points) a minimum grade equal to 40% of the maximum grade to be achieved in each final exam is established. In order to favor the weight of the continuous evaluation in the final grade, not reaching the minimum grade established will not mean the impossibility to pass the course, but the points of that final exam will not be added to the rest of the points obtained.

Evaluation of practices, presentations, problems, assignments, participation and attitude:
30% valued jointly as follows for basic subjects:
- Presentations, papers and practices: 25%.
- Participation and attitude: 5%.

To pass the course it will be necessary to obtain 40% of this 30%, which represents at least 1.2 points in the practical part of the 10 total points of the course and to fulfill the requirements of the section "Evaluation Criteria" that appears in the electronic guide.

EXTRAORDINARY CALL, SPECIAL FINAL CALL, ORDINARY NON-ATTENDANCE CALL:
Theoretical evaluation: exam with a weight of 70%. To pass the course it will be necessary to obtain 40% of this 70%, which means at least 2.8 points in the theoretical part of the 10 total points of the course and meet the requirements of the section "Evaluation criteria". In case of having passed the theoretical part of the course in the current or previous year, the grade obtained in the last exam will be maintained.
Practical evaluation: to pass the course it will be necessary to obtain 40% of this 30%, which means at least 1.2 points in the practical part of the 10 total points of the course and to fulfill the requirements of the section "Evaluation criteria". In case of having passed the practical part in the current or previous course, the grade obtained in the last exam will be maintained.

Non-continuous evaluation:
See what is described in the previous point.

Specifications for the resit/retake exam:
See what is described in the previous point.

Specifications for the second resit / retake exam:
See what is described in the previous point.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	**hours**
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	10
Class Attendance (theory) [PRESENCIAL][Lectures]	15
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5
Computer room practice [PRESENCIAL][Practical or hands-on activities]	5
Project or Topic Presentations [PRESENCIAL][Guided or supervised work]	15
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Writing of reports or projects [AUTÓNOMA][Self-study]	4.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	64
On-line Activities [AUTÓNOMA][Problem solving and exercises]	1.5
Other off-site activity [AUTÓNOMA][Self-study]	20
Unit 1 (de 5): Descriptive Statitics and Probability	
Group 20:	
Initial date: 05-02-2024 **End date:** 23-02-2024	
Unit 2 (de 5): Basics of Inferential Statistics	
Group 20:	

Initial date: 26-02-2024   **End date:** 15-03-2024

Unit 3 (de 5): Parametric and Non-Parametric Tests

Group 20:

Initial date: 18-03-2024   **End date:** 12-04-2024

Unit 4 (de 5): Analysis of Variance. Introduction to Survival Analysis

Group 20:

Initial date: 15-04-2024   **End date:** 03-05-2024

Unit 5 (de 5): Epidemiology

Group 20:

Initial date: 06-05-2024   **End date:** 24-05-2024

Global activity

Activities	hours
Project or Topic Presentations [PRESENCIAL][Guided or supervised work]	15
Computer room practice [PRESENCIAL][Practical or hands-on activities]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Writing of reports or projects [AUTÓNOMA][Self-study]	4.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	64
On-line Activities [AUTÓNOMA][Problem solving and exercises]	1.5
Other off-site activity [AUTÓNOMA][Self-study]	20
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	10
Class Attendance (theory) [PRESENCIAL][Lectures]	15
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Martín Andrés, A.	50 +- 10 horas de bioestadística	Norma		84-7487-068-2	1995	
Martín Andrés, A.	Bioestadística para las ciencias de la salud (+)	Norma-Capitel		84-8451-018-2	2004	
Novo Sanjurjo, Vicente	Problemas de cálculo de probabilidades y estadística	Sanz y Torres		84-96094-14-6	2003	
Peña, Daniel	Fundamentos de estadística	Alianza Editorial		978-84-206-8380-5	2008	
Peña, Daniel	Regresión y diseño de experimentos	Alianza Editorial		978-84-206-9389-7	2010	
Rius Díaz, Francisca	Bioestadística	Paraninfo,		978-84-283-3505-8	2014	
Rivas López, María Jesús	Análisis de supervivencia	La Muralla ; Salamanca Hespérides		84-7133-702-9	2000	
Álvarez Cáceres, Rafael	Estadística aplicada a las ciencias de la salud	Díaz de Santos		978-84-7978-823-0	2007	
	Bioestadística amigable /	Elsevier,		978-84-9022-500-4	2014	
Gordis, L.	Epidemiology	Elsevier		978-14-5573-733-8	2014	
Piédrola Gil, G.	Medicina Preventiva y Salud Pública	Masson-Elsevier		978-84-458-2605-8	2015	
Argimon, J.M. y Jiménez Villa, J.	Métodos de investigación clínica y epidemiológica	Elsevier		978-84-8086-941-6	2013	
Martínez González, M.A. et al.	Conceptos de salud pública y estrategias preventivas. Un manual para ciencias de la salud	Elsevier		978-84-9113-120-5	2013	
Hernández-Aguado, I. et al	Manual de epidemiología y salud pública para grados en ciencias de la salud	Médica Panamericana		978-84-9110-173-4	2011	