COURSE DESCRIPTION

COURSE DETAILS

Title (of the course): **EVOLUCIÓN**
Code: 100431
Degree/Master: **GRADO DE BIOLOGÍA** Year: 4
Field: OPTATIVA
Character: OPTATIVA Duration: SECOND TERM
ECTS Credits: 6.0 Classroom hours: 60
Face-to-face classroom percentage: 40.0% Study hours: 90
Online platform: http://moodle.uco.es/moodlemap/

LECTURER INFORMATION

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PREREQUISITES AND RECOMMENDATIONS

Prerequisites established in the study plan

The student must have approved the block of 60 credits corresponding to the basic subjects and at least 60 credits of compulsory subjects.
B1 english level required.

Recommendations

None specified

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INTENDED LEARNING OUTCOMES

CU2	Knowledge and perfection of user level in the area of ICTs.
CB4v4	Capacity to analyse and synthesise.
CB4v9	Critical thinking in line with the scientific method.
CB8v1	Obtain information, design experiments and interpret results.
CB10v14	Use of the Internet as a means of communication and a source of information.
CB12v7	Communicative abilities and public debate.
CB17v3	Computing applied to biology.
CE21v2	Analyse and genetically characterise specimens of human origin.
CE29v1	Carry out phylogenetic analysis.
CE29v2	Phylogeny.
CE63n	Evolutionary mechanisms and models.
CE65n	Conception and design of life and evolution at different levels of organisation.
CE66n	Genetic bases of biodiversity.
CE67n	Carry out genetic counselling.
CE68n	Carry out studies of animal and plant breeding.

OBJECTIVES

To provide students with a global vision of the evolutionary thought.
To encourage the critical sense of students facing theories and experimental designs.
To provide students with tools allowing to make desissions in population studies and in reports and biological services.
To provide students confidence in their possibilities and abilities for plannig, and managing work groups.

CONTENT

1. Theory contents

Block 1: Origin and history of the evolutionary thought.
Block 2: Study of the variation.
Block 3: Characterisation and analysis of genes in populations.
Block 4: Mechanisms of the evolutionary change.
Block 5: Evolution of quantitative traits.
Block 6: Measurement of the evolutionary change.
Block 7: Phylogeny reconstruction
Block 8: Origin of the genetic information.
Block 9: The speciation.
Block 10: The biological adaptation.
Block 11: History of life.
Block 12: Human evoution.
Block 13: Development and evolution.

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2. Practical contents

Session 1.-Using genetic data base in silico.
Session 2.-Phenotypic variability and genetic parameters of morphological traits in a human population.
Session 3.- Using DNA microsatellites for identification and filiation control.
Session 4.- Simulation of stochastic and directional processes in gene populations.
Session 5.- Microdifferentiation of Drosophila species.

SUSTAINABLE DEVELOPMENT GOALS RELATED TO THE CONTENT

No poverty
Zero hunger
Good health and well-being
Quality education
Gender equality
Decent work and economic growth
Reduced inequalities
Sustainable cities and communities
Responsible consumption and production
Climate action
Partnerships for the goals

METHODOLOGY

General clarifications on the methodology (optional)

Those stated by de University of Córdoba.

Methodological adaptations for part-time students and students with disabilities and special educational needs

Those stated by de University of Córdoba. For disabled student, the teacher will adeccuately deal every individual case.

Face-to-face activities

Activity	Large group	Medium group	Total
Assessment activities	3	-	3
Concept maps	1	-	1
Debates	3	-	3
Excursions	3	3	6
Lab practice	-	12	12
Lectures	19	6	25
Mind maps	1	-	1
Seminar	-	6	6

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Activity	Large group	Medium group	Total
Tutorials	3	-	3
Total hours:	***33***	***27***	***60***

Off-site activities

Activity	Total
Activities	30
Analysis	10
Exercises	20
Information search	5
Reference search	5
Self-study	20
Total hours	***90***

WORK MATERIALS FOR STUDENTS

Case studies
Coursebook
Dossier
Exercises and activities
Lessons summary
Oral presentations
Placement booklet
References

EVALUATION

Intended learning	Case study/clinical case discussion/scientific work discussion	Exams	Log	Placement reports
CB10v14	X			X
CB12v7	X	X		X
CB17v3	X			X
CB4v4	X	X	X	
CB4v9	X		X	X
CB8v1	X	X		X
CE21v2	X	X		X

COURSE DESCRIPTION

Intended learning	Case study/clinical case discussion/scientific work discussion	Exams	Log	Placement reports
CE29v1	X	X	X	X
CE29v2	X	X	X	X
CE63n	X	X		
CE65n	X		X	X
CE66n	X	X		
CE67n	X	X	X	X
CE68n	X	X	X	X
CU2	X	X	X	X
Total (100%)	***15%***	***65%***	***10%***	***10%***
Minimum grade	***0***	***5***	***0***	***0***

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

Method of assessment of attendance:

5%

General clarifications on instruments for evaluation:

Those previously cited.

Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

Those of UCO rules. For disabled students, teacher will adeccuately deal with very individual case.

Clarifications on the evaluation of the extraordinary call and extra-ordinary call for completion studies:

Those of OCO rules. For extra call the following evaluation tools will be applyed: Log, Exams, Placement reports, Case study/clinical case discussion/scientific work discussion.

Qualifying criteria for obtaining honors:

A mark higher than 9 is mandatory. The total number will not exceed the 5% of total students. In case of less than 20 students only one Honor Nomination can be awarded.

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BIBLIOGRAPHY

1. Basic Bibliography

- FREEMAN, S. y HERRON, JC. Evolutionary Analysis. Ed. Prentice Hall. 1998.
- LEWONTIN, R.C. La Base Genética De La Evolución. Ed. Omega, Barcelona. 1979.3
- NEI, M. and KUMAR, S. Molecular Evolution and Phylogenetics. Oxford University Press. 2000.
- PAGE, R.D.M. and HOLMES, E.C. Molecular Evolution. A phylogenetic approach. Blackwell Science Ltd. 1998.

2. Further reading

- LI, W-S y GRAUR, D. Fundamental of Molecular Evolution. Ed. Sinauer. 1991
- SPIESS, E.B. Genes In Populations. Ed. Wiley and Sons, New York. 1989.
- WEIR, B.S. Genetic Data analysis. II. Sinauer.1996. Weir B.S. 1996. Genetic Data Análisis II. Ed. Sinauer.
- APUNTES. En el aula virtual de la Universidad de Córdoba.
- DOMINGO, E., BIEBRICHER, C.K., EIGEN, M., HOLLAND J. J. Quasispecies and Rna Virus Evolution: Principles and Consequences (Molecular Biology Intelligence, Unit 14) Paperback (2002) Landes Bioscience; ISBN: 1587060779
- LEWONTIN R.C. La adaptación. Investigación y Ciencia, 26. 1978.
- MARGULIS, L. y D. SAGAN. El origen de las células eucariotas. Mundo Cient. 46: 366-375. 1985.
- TEMPLADO, J. Historia de las teorías evolutivas. Alhambra. 1970. - http://www.ncbi.nlm.nih.gov

COORDINATION CRITERIA

Joint activities: lectures, seminars, visits ...
Orientation session
Tasks deadlines
Tasks performance

SCHEDULE

Period	Assessment activities	Concept maps	Debates	Excursions	Lab practice	Lectures	Mind maps	Seminar	Tutorials
1# Fortnight	0,0	1,0	0,0	0,0	3,0	3,0	0,0	0,0	0,0
2# Fortnight	0,0	0,0	1,0	0,0	0,0	6,0	1,0	0,0	1,0
3# Fortnight	0,0	0,0	0,0	0,0	2,0	6,0	0,0	0,0	0,0
4# Fortnight	0,0	0,0	1,0	0,0	2,0	5,0	0,0	0,0	1,0
5# Fortnight	0,0	0,0	0,0	3,0	0,0	3,0	0,0	3,0	0,0
6# Fortnight	0,0	0,0	1,0	3,0	3,0	0,0	0,0	0,0	1,0
7# Fortnight	3,0	0,0	0,0	0,0	2,0	2,0	0,0	3,0	0,0
Total hours:	***3,0***	***1,0***	***3,0***	***6,0***	***12,0***	***25,0***	***1,0***	***6,0***	***3,0***

COURSE DESCRIPTION

The methodological strategies and the evaluation system contemplated in this Course Description will be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required.