

Health and Environment

Code: 100747
ECTS Credits: 6

Degree	Type	Year	Semester
2500250 Biology	OB	3	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Other comments on languages

The main vehicular language will be Catalan. There will be a group of practices in English.

Prerequisites

There are no prerequisites.

Objectives and Contextualisation

The course of Health and Environment is integrated in the field of Human Biology and, together with the course of Human Biology (second year), give the basics of human biology that can deepen with fourth year courses (Forensic Anthropology, Molecular Anthropology, Human Genetics, Human Origins and Primatology).

In this context, the main goal of the Health and Environment course is to study the relationship between man and the environment, including culture and society in a specific anthropogenic environment, in which health is understood as a measure of successful adaptation to the environment. The tools of demography and epidemiology for the study of health state of the human populations are introduced and the different aspects of the human variability at the morphological, physiological and genetic levels are worked, in relation to the adaptation, the acclimatization and adjustment to the environment. The role of different abiotic and biotic factors in the adaptability of the human species is studied. Health-related issues when adapting balance are changed are also discussed.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Analyse and interpret the origin, evolution, diversity and behaviour of living beings.
- Apply statistical and computer resources to the interpretation of data.
- Be able to analyse and synthesise
- Be able to organise and plan.
- Characterise, manage, conserve and restore populations, communities and ecosystems.
- Control processes and provide services related to biology.
- Develop a sensibility towards environmental issues.

- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Understand the processes that determine the functioning of living beings in each of their levels of organisation.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Analyse present and past intra-population and inter-population variability in our species.
3. Analyse the mechanisms that generate biological diversity in our species and interpret their adaptive significance and the mechanisms that maintain this diversity.
4. Analyse the sex- or gender-based inequalities and the gender biases present in one's own area of knowledge.
5. Analyse the sustainability indicators of the academic and professional activities within the area, integrating the social, economic and environmental dimensions.
6. Apply statistical and computer resources to the interpretation of data.
7. Be able to analyse and synthesise.
8. Be able to organise and plan.
9. Critically analyse the principles, values and procedures that govern the exercise of the profession.
10. Detect problems associated with population changes and design alternatives.
11. Develop a sensibility towards environmental issues.
12. Identify the natural and artificial factors that affect human health.
13. Identify the principal natural factors that have intervened in the distribution of human populations.
14. Interact with and advise government institutions operating in the field of social policy and population and public health policy.
15. Interpret values of human demography and epidemiology.
16. Interrelate the environmental, biological and cultural data that merge in the interpretation of human evolution.
17. Propose new methods or well-founded alternative solutions.
18. Propose projects and actions that incorporate the gender perspective.
19. Propose ways to evaluate projects and actions for improving sustainability.
20. Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
21. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
22. Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
23. Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
24. Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
25. Work in teams.

Content

Theory

The subject of Health and Environment consists of six blocks of conceptual contents, eminently theoretical that will be developed following different strategies. Classes are conceived in a dynamic model that seeks to create discussion moments and to clarify wrong preconceived ideas. A conceptual outline of the subject will be presented to students what would allow them to carry out programmed activities of greater complexity, such as reading and discussing articles, visualization and discussion of videos, or applying the of theoretical concepts to the research project and work of the subject, and, in this way, deepen the different topics.

Block I- Presentation and Introduction to the subject

Block II - Demography and Epidemiology

Block III - Interaction of genes and environment and adaptability

Block IV- Human Nutrition

Block V - Human Adaptation to Climate

Block VI - Disease in evolutionary perspective

Laboratory and computer practices

One of the practice groups will be in English; Students can join freely in this group before the beginning of the course

1. Demography and epidemiology practices

The practices of demography and epidemiology are aimed at providing the bases and general guidelines of the demography and epidemiology research project, in which concepts developed in Block II of theory - demography and epidemiology - are applied, but also other concepts being developed throughout the course. This project aims to make a descriptive study of a health problem in Spain, considering its distribution according to age and sex, over time, in different regions of the country, and finally relate its distribution to the other risk factors that may be related to the selected health problem.

The practices in computer classroom of demography and epidemiology consist of 5 sessions (four of 2 hours and one of 3 hours) concentrated in the beginning of the semester. Each session addresses practical aspects that students can apply to the development of their research project and the teacher makes a personalized follow-up of the work that each group is developing. To streamline the entire procedure, students have video tutorials developed by the teachers of the subject that facilitate the automation of routine procedures in Excel, Access, JAMOVİ, etc.

2. Somatometry and diet practices

To develop the subjects of human adaptation and nutrition, 4 hours of laboratory practices and 3 hours of computer classroom practice are taught. The results of the two practices will be the basis to perform the work of somatometry and diet.

In the laboratory practice students have the first contact with Anthropometry, its importance and scope of application. During the practice they perform anthropometric and morphological evaluations, applying them to the study of nutritional status. To carry out the activities, students have a structured guide (previously available in the virtual campus) that specifies exactly all the measures that have to be taken and what is the correct way to do them. The data generated are entered into a database that will include the information of all the groups of practices and in which no identifying element of the students is included (guaranteed the anonymity of the data). These data will be later analysed by the students individually, being part of the work of somatometry and diet.

In the computer classroom practice students perform indirect assessment of their diet based on their own dietary journal. Each student, individually, enters all data related to their consumption of food and beverages, previously recorded for seven consecutive days. Next students get the data of the assessment of their diet. With the results obtained, they must make an analysis and interpretation taking into account reference standards and also the data obtained in the laboratory practice. For this, students also have a tutorial guide.

Classroom practices

During the classroom practices sessions, the presentation and defence of the research projects carried out during the semester will be carried out.

Seminars

1. Introduce the objectives of the research project
2. How to present a research paper?
3. Expert meeting of the research project

Methodology

The development of the training activities of the course is based on: theory classes, seminars, classroom practices and laboratory and computer practices, each of them with its specific methodology. Likewise, a series of activities are proposed that will allow the student to take an active role in the teaching-learning process.

Classes of theory: The student acquires the scientific knowledge of the subject by attending theory classes. These are classes with TIC-TAC support in which the teacher exposes the subject but also asks for the participation of the student. Likewise, activities prior to the sessions are proposed that allow the student to intervene more actively in the teaching-learning process. The audio-visual material used in class can be found by the student in the Moodle space of the subject.

Classes of practices and seminars: The knowledge acquired in theory classes and in personal study are applied to the resolution of practical cases. Students work in small groups allowing them to acquire the ability to work in groups and to analysis and synthesis. It also allows to apply statistical resources in the interpretation of data. The student will be able to access the practice guides through the Moodle space. The practical classes are directed to support the development of the demography and epidemiology research project (work by group project) and the work of somatometry and diet (individual work).

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom practices	5	0.2	6, 12, 23, 22, 20, 21, 7
Computer practices	14	0.56	9, 5, 3, 2, 4, 1, 6, 10, 12, 13, 14, 15, 16, 19, 17, 18, 24, 23, 22, 20, 21, 11, 7
Laboratory practices	4	0.16	3, 2, 6, 12, 13, 16, 24, 23, 21, 25
Seminars	3	0.12	12, 7
Theory classes	26	1.04	5, 3, 2, 4, 10, 12, 13, 14, 15, 16, 11
Type: Supervised			

Tutorship (individual or group)	4	0.16	
Type: Autonomous			
Individual study	34	1.36	3, 2, 10, 12, 13, 14, 15, 16, 11, 7
Preparation of some theoretical content and seminars of the course	6	0.24	4, 12, 22, 20, 21
Research project on demography and epidemiology	40	1.6	9, 5, 3, 2, 4, 1, 6, 10, 12, 13, 14, 15, 16, 19, 17, 18, 24, 23, 22, 20, 21, 11, 7
Somatometry and diet work	14	0.56	12, 24, 23, 20, 21, 7

Assessment

For the evaluation of the subject, a continuous assessment model will be followed. The participation of the student, the preparation and presentation of the research project, the work of somatometry and diet and the grade of the summative evaluation will be taken into account, in the following proportions:

- Final summary evaluation: 35%
- Research project on demography and epidemiology (group): 40%
- Somatometry and diet work (individual): 15%
- Student participation in face-to-face and virtual learning activities: 10%

For the evaluation of the subject a model of continuous evaluation will be followed; in the development of all the activities, including those of theoretical typology, the involvement of the student will be asked to prepare some concepts and to perform different activities that will facilitate the learning process.

In the case of the research group project, the process of preparing it throughout the semester, the periodic deliveries and the tutorials will be taken into account. The final result will also be assessed in terms of the quality of the information used, the presentation and defence as well as the self-assessment and co-assessment of the group members.

The group research project (both digital support and oral presentation and defence) can be done in Catalan, Spanish or English. Students who use the English language will have a bonus in the final grade of the research project of up to 1 point. All the evaluation of the project will be done with the use of rubrics that will be made available to students at the beginning of the course.

A final summative evaluation will be carried out after all the activities of the subject in which students are required to have a minimum grade of 4 to be able to pass the subject. This evaluation will be an objective test-type.

Recovery: if needed, the mark of the demographic and epidemiological research project and the summative evaluation can be recovered. To participate in the recovery, the students must have been previously evaluated in a set of activities whose weight equals to a minimum of two thirds of the total grade of the subject. Therefore, the students will obtain the "Not Evaluable" rating when the evaluation activities carried out have a weighting of less than 67%.

The grade of the summary evaluation can be raised, in this case, the classification that will be considered will be the last one, regardless of whether it is superior or inferior to that obtained previously.

The weighted average mark of the different evaluable parts detailed before must be equal or superior to 5.0.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final summative evaluation	35%	0	0	3, 2, 4, 10, 12, 13, 14, 15, 16, 24, 23, 22, 20, 21, 11, 7
Participation in face-to-face and virtual learning activities	10%	0	0	3, 2, 6, 10, 12, 13, 14, 15, 16, 24, 11, 7
Research project on demography and epidemiology (group)	40%	0	0	9, 5, 4, 1, 6, 10, 12, 13, 14, 15, 19, 17, 18, 24, 23, 22, 20, 21, 11, 7, 8, 25
Somatometry and diet work (individual)	15%	0	0	3, 2, 6, 12, 13, 16, 24, 23, 22, 20, 21, 7

Bibliography

BASIC BIBLIOGRAPHY

- COOPER, D.N. i KEHRER-SAWATZKI, H. (2008). Handbook of Human Molecular Evolution. Wiley.
- COSTA, L.G. i EATON D.L. (2006). Gene-Environment interactions - Fundamentals of Ecogenetics. Wiley-Liss.
<https://login.are.uab.cat/login?url=https://login.are.uab.cat/login?url=https://onlinelibrary.wiley.com/book/10.1002/>
- IRALA, J. et al. (2008). Epidemiología Aplicada (2nd Ed.). Ariel Ciencias Médicas.
- FRISANCHO, A.R. (1996). Human Adaptation and Acomodation. The University of Michigan Press.
- JOBLING, M.A. et al. (2014). Human Evolutionary Genetics (2nd Ed). Garland Science.
- Bartelink, E. et al. (2016). Essentials of Physical Anthropology (10th Ed). Wadsworth Cengage Learning.
- MORAN, E.F. (2008). Human Adaptability - An introduction to Ecological Anthropology. Westview press.
<https://login.are.uab.cat/login?url=https://login.are.uab.cat/login?url=https://ebookcentral.proquest.com/lib/uab/de>
- MUEHLENBEIN, M.P. (2010). Human Evolutionary Biology. Cambridge University Press.
- REBATO, E. et al. (2005). Para comprender la antropología biológica. Evolución y Biología Humana. Ed Verbo Divino
- RUIZ MORALES, A. (2015). Epidemiología Clínica : Investigación clínica aplicada. Editorial Médica Panamericana
<http://www.medicapanamericana.com/VisorEbookV2/Ebook/9789588443584>

SPECIFIC BIBLIOGRAPHY, WEBSITES AND VIDEOS

Given during the development of each topic.

Software

Jamovi Stats. Open. Now. (<https://www.jamovi.org/>)

MapChart (<https://mapchart.net/>)

CESNID

Access

Excel

Power-Point

Word