

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. The seminar in large group will be in Catalan, Castilian or English, depending on the invited speaker. The work of the course can be done in Catalan, Castilian or English.

Teachers

Xavier Jordana Comin

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 course of Health and Environment main objective has the study of the different aspects of human variability, both morphologically and physiologically and genetically, with respect to adaptation, acclimatization and adjustment to the environment. The role of different abiotic and biotic factors in the adaptability of the human species is related. Also, it is discussed the issues related to health when the adaptive balance is disturbed.

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

Demography of human populations

Epidemiology of human populations: risk factors and type of design

Genetic epidemiology

Block III - Interaction of genes and environment

Epigenetics in human variation and disease

Ecogenetics and Pharmacogenetics

Block IV - Human Adaptation to Climate

Adaptation, plasticity and acclimatization

Temperature, humidity, solar radiation and altitude

Block V- Human Nutrition

Nutrition and assessment of nutritional status

Human nutritional evolution

Malnutrition

Nutrigenomics

Block VI - Disease in evolutionary perspective

Evolutionary theory of the disease

Infectious diseases as selective force

Laboratory and computer practices

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.

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, Deducer, 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 and climate adaptation. 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.

Classroom practices

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

Specialized seminar

The specialized seminar is taught by a specialist who is invited to speak on a topic related to the subjects of the course. Before the seminar a forum is activated in which the students must share information about the guest with their classmates.