Universitat de les Illes Balears

Teaching guide

Academic year	2016-17
Subject	10276 - Nutrigenomics and Personalised Nutrition
Group	Group 1, 2S
Teaching guide	A
Language	English

Subject identification

Subject	10276 - Nutrigenomics and Personalised Nutrition
Credits	1 de presencials (25 hours) 4 de no presencials (100 hours) 5 de totals (125 hours).
Group	Group 1, 2S (Campus Extens)
Teaching period	Second semester
Teaching language	Spanish

Professors

Lecturers	**Horari d'atenció als alumnes**					
	Starting time	**Finishing time**	**Day**	**Start date**	**Finish date**	**Office**
María Luisa Bonet Piña luisabonet@uib.es	You need to book a date with the professor in order to attend a tutorial.					
Catalina Picó Segura cati.pico@uib.es	You need to book a date with the professor in order to attend a tutorial.					

Contextualisation

TEACHING STAFF:

Mª Luisa Bonet (Dra. in Biological Sciences, University of Alicante, 1990) is associate professor of the University of the Balearic Islands and senior responsible researcher in the group of Molecular Biology, Nutrition and Biotechnology-Nutrigenomics of the UIB. Member of the Center for Biomedical Research Network Pathophysiology of obesity and nutrition (CIBERobn). Her investigation is focused on the mechanisms controlling body fat content and their interaction with nutrients (Molecular nutrition).

Catalina Picó (PhD in Biological Sciences; UIB, 1991). Professor of Biochemistry and Molecular Biology and Deputy Director of the Laboratory of Molecular Biology, Nutrition and Biotechnology-Nutrigenomics of the UIB. Member of the Center for Biomedical Research Network Pathophysiology of obesity and nutrition (CIBERobn). Her research focuses on the field of molecular nutrition and nutrigenomics, particularly in the study of obesity, the mechanisms of body weight regulation, including perinatal programming and epigenetic imprinting, and the effects of certain nutrients on these processes.

SUBJECT:

Subject of the official Master in Nutrigenomics and Personalised Nutrition of the UIB, compulsory, 5 ECTS. Its main objective is to be aware of basic concepts in personalised nutrition, and in particular the interaction between genes and nutrients, and importance in the prevention of and susceptibility to illnesses.

Learning outcomes:
- To be able to evaluate on a population and case by case level the potential contribution, in light of available knowledge, of gene-diet interactions in the development of certain diseases.
- To be able to analyze the benefit / risk balance of dietary recommendations and interventions according to the genotype.
- Justify the importance of taking care of diet in the perinatal period for health in adulthood.
- Apply the foundations of nutrigenomics and personalized nutrition in health promotion.

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- Weighing social and ethical responsibilities linked to the development of nutrigenomics and the application of personalized nutrition.

Requirements

This subject has no essential requirements beyond those required for admission to Master studies.

Recommendable

We recommend a medium level of knowledge in Biochemistry, Molecular Biology, Nutrition, Molecular Nutrition and English. It will also be helpful for the student to have access opportunities to Internet.

Skills

These are the skills:

Specific

* E6 - Integrate knowledge of the main metabolic pathways and the role of nutrients in health and disease situations.
* E9 - Apply specific laboratory techniques related to the field of molecular nutrition and nutrigenomics.

Generic

* G10 - Ability to communicate knowledge in oral and written presentations.
* G12 - Ability to develop their work in English (language internationally recognized in the scientific discipline).
* G9 - Ability to collect, organize and critically analyze the research and professional literature of the discipline.

Basic

* You may consult the basic competencies students will have to achieve by the end of the Master's degree at the following address: http://estudis.uib.cat/master/comp_basiques/

Content

Theme content

Theme 1. Introduction

Concept of functional genomics, systems biology, nutrigenomics, nutrigenetics, personalised nutrition.

Theme 2. Diet and gene expression

Short-term gene expression regulation by nutritional factors. Diet and epigenetics.

Theme 3. Perinatal programming

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Diet in early life and metabolic programming.

Theme 4. Gene polymorphisms and responses to diet

Diet as a risk or preventive factor of pathologies. Experimental designs in human nutrigenetics studies. Nutrigenetics of cancer, osteoporosis, cardiovascular disease and obesity.

Theme 5. Workshop case studies

Case studies in nutrigenomics, nutrigenetics and personalised nutrition.

Teaching methodology

In-class work activities

Modality	Name	Typ. Grp.	Description	Hours
Theory classes	Participatory lectures	Large group (G)	Presentation by the teacher of the main contents of the subject. It is intended that students acquire the key knowledge in relation to the subject and its applications. The involvement of students in classes and student-teacher dialogue. Power point presentations of the issues will be made available to students in Campus Extens so that students can come to class having already consulted this material.	14
Seminars and workshops	Seminar presentation and discussion of work done by students.	Medium group 2 (X)	Presentation by the students (who have chosen this option) of a seminar related to the context of the subject. Dialogue with the teacher and with other students will be promoted.	9
ECTS tutorials	Group and individual tutoring	Medium group 2 (X)	Tutorials will be established so that students can refer to the professor doubts about the topics covered as well as on the seminar or work to be done	0.75
Assessment	Final exam	Large group (G)	An exam for those who can not attend class regularly and who have chosen the option of final evaluation. This examination will consist of specific questions to be developed, which will allow to assess whether the student has acquired the skills provided.	1.25

At the beginning of the semester a schedule of the subject will be made available to students through the UIBdigital platform. The schedule shall at least include the dates when the continuing assessment tests will be conducted and the hand-in dates for the assignments. In addition, the lecturer shall inform students as to whether the subject work plan will be carried out through the schedule or through another way included in the Campus Extens platform.

Distance education work activities

Modality	Name	Description	Hours
Individual self-study	Resolution of questionnaires, exercises and cases	Students must answer the proposed questionnaires, designed to cover the most important concepts to understand, and stimulate the ability of	50

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Modality	Name	Description	Hours
		reasoning and autonomous search of relevant information in the context of the subject. It will allow to assess the degree of understanding of the subject and the maturity in it.	
Group or individual self-study	Preparation of a work	Performance of a work in the context of nutrigenomics. There are two options: 1. To do the work individually or in groups of two people at most, present it in seminar and deliver a summary of the work (maximum two pages references used). 2. To do the work individually and return the completed work writted. The extension of the work may not exceed, including references, 15 pages and should include an abstract (maximum 300 words), the objective and interest of the work, the development of the subject, conclusions and bibliography. It will allow to assess the student's ability to choose a topic of interest in the context of the subject, find and organize relevant, proven information on it, and communicate this information with strictness.	50

Specific risks and protective measures

The learning activities of this course do not entail specific health or safety risks for the students and therefore no special protective measures are needed.

Student learning assessment

Two routes are proposed:

- Continuous evaluation (pathway A), for students who attend classes regularly.

- Final evaluation (pathway B), for students who can not attend classes.

Each section will be marked out of 10. The final mark will be the weighted average scores on the different sections. To pass the course, at least 5 point of 10 must be obtained. If the note is not exceeded, the activities specified as recoverable may be recovered in September, except the exhibition of work , that will be presented as a written work.

Participatory lectures

Modality	Theory classes
Technique	Attitude scales **(non-retrievable)**
Description	Presentation by the teacher of the main contents of the subject. It is intended that students acquire the key knowledge in relation to the subject and its applications. The involvement of students in classes and student-teacher dialogue. Power point presentations of the issues will be made available to students in Campus Extens so that students can come to class having already consulted this material.
Assessment criteria	The assistance and active participation in lectures given by the teacher will be assessed.

Final grade percentage: 12% for the training plan A
Final grade percentage: 0% for the training plan B

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Seminar presentation and discussion of work done by students.

Modality	Seminars and workshops
Technique	Attitude scales **(non-retrievable)**
Description	Presentation by the students (who have chosen this option) of a seminar related to the context of the subject. Dialogue with the teacher and with other students will be promoted.
Assessment criteria	The assistance and active participation in seminars conducted by students will be assessed.

Final grade percentage: 8% for the training plan A
Final grade percentage: 0% for the training plan B

Final exam

Modality	Assessment
Technique	Short-answer tests **(retrievable)**
Description	An exam for those who can not attend class regularly and who have chosen the option of final evaluation. This examination will consist of specific questions to be developed, which will allow to assess whether the student has acquired the skills provided.
Assessment criteria	The understanding and assimilation of the concepts explained in class will be assessed. This examination may be recovered in an exam in September with the same characteristics.

Final grade percentage: 0% for the training plan A
Final grade percentage: 50% for the training plan B

Resolution of questionnaires, exercises and cases

Modality	Individual self-study
Technique	Papers and projects **(retrievable)**
Description	Students must answer the proposed questionnaires, designed to cover the most important concepts to understand, and stimulate the ability of reasoning and autonomous search of relevant information in the context of the subject. It will allow to assess the degree of understanding of the subject and the maturity in it.
Assessment criteria	It will be assessed if the student has resolved the issues raised, and the degree of understanding of matter and the maturity in the field.

Final grade percentage: 40% for the training plan A
Final grade percentage: 25% for the training plan B

Preparation of a work

Modality	Group or individual self-study
Technique	Papers and projects **(retrievable)**
Description	Performance of a work in the context of nutrigenomics. There are two options: 1. To do the work individually or in groups of two people at most, present it in seminar and deliver a summary of the work (maximum two pages references used). 2. To do the work individually and return the completed work written. The extension of the work may not exceed, including references, 15 pages and should include an abstract (maximum 300 words), the objective and interest of the work, the development of the subject, conclusions and bibliography. It will allow to assess the student's ability to choose a topic of interest in the context of the subject, find and organize relevant, proven information on it, and communicate this information with strictness.
Assessment criteria	The work delivered by the students or presented at the seminar will be valued.

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In particular, with respecte to the papers presented at the seminar, we will evaluate the degree of depth in the topic, clarity of presentation, preparedness, coordination between group members, the ability to adjust exposure time and maturity in response to questions raised after the exposure.

In the work presented in writing, we will assess the student's ability to choose a topic of interest in the context of the subject, find and organize relevant and proven information on it, including all required sections, the quality of work, proper use and citation of the literature as well as ability to communicate this information with strickness.

Final grade percentage: 40% for the training plan A
Final grade percentage: 25% for the training plan B

Resources, bibliography and additional documentation

Power point presentations of the classes given by the teacher will be made available to students in campus extens. Other scientific articles closely related to the context of the subject are also proposed; in addition, the students will be encouraged to search for other items related to the topics covered in class and the item of work developed.

Basic bibliography

Presentations of the themes prepared by the teachers and made available to the students will include the bibliography used in their preparation.
Useful sources of information are as well certain internet sites of recognized prestige, such as those of research consortiums and societies devoted to Nutrigenomics, among them the internet site of the Network of Excelence in Nutrigenomics NuGO, to which the Laboratory of Molecular biology, Nutrition and Biotechnology leading the Master belongs (http://www.nugo.org/everyone).

Complementary bibliography

The teachers will provide the students review articles of outstanding interest as complementary bibliography for each lesson.

Other resources

WEB pages of recognized standing and creditworthiness, and in particular the research consortia engaged in Nutrigenomics:
- http://www.nugo.org/everyone

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