

Academic year	2019-20
Subject	10277 - Methods and Techniques in Nutrigenomics and Personalised Nutrition
Group	Group 1

Subject

Subject / Group	10277 - Methods and Techniques in Nutrigenomics and Personalised Nutrition / 1
Degree	Master's in Nutrigenomics and Personalised Nutrition
Credits	3
Period	2nd semester
Language of instruction	Spanish

Professors

Lecturers	Office hours for students					
	Starting time	Finishing time	Day	Start date	End date	Office / Building
Juana Sánchez Roig joana.sanchez@uib.es						You need to book a date with the professor in order to attend a tutoring session.
Francisca Serra Vich francisca.serra@uib.es						You need to book a date with the professor in order to attend a tutoring session.

Context

This is a compulsory matter in the Master on Nutrigenomics and Personalised Nutrition. This matter comes in the second semester, after the introductory matters. The aim of this subject is to go in further detail on methods and techniques characteristic of Nutrigenomic studies.

Francisca Serra is Prof. of Nutrition and Food Sciences at UIB and R & D Director in Alimentomica SL. She has been Director of R & D Service of the University (1993-96) and National Expert at the EC, DG for Science, Research and Development (Brussels) (1997-2000). Her research focuses on molecular basis of obesity, particularly the interaction between genes and nutrients (nutrigenomics and nutrigenetics) and the impact of diet on early developmental stages (epigenetics) on susceptibility to obesity in adulthood. It is also of her interest, the study and characterization of functional foods that could help to counteract obesity.

Dra. Juana Sánchez is associate professor (tenured) at Departamento de Biología Fundamental y Ciencias de la Salud, UIB. Author of more than 60 research articles, 2 international reviews, 3 book chapters, 3 patents and more than 200 contributions to national and international conferences. H-index: 24. She is co-principal investigator of a competitive national research project from ISCIII. She has participated in 6 European and 15 national/autonomic research projects, and in 9 R+D private contracts. Research Keywords: Perinatal nutrition, metabolic programming, early biomarkers.

Requirements

Recommended

Knowledge on Nutrigenomics and good comprehension in English is advisable.

Syllabus

Lectures may be in both, English and Spanish. Reference material on the web is mainly in English.

Skills

Specific

- * To be continuously updated on the field of Nutrigenomics and Personalized Nutrition
- * Integrate knowledge of the main metabolic pathways and the role of nutrients in health and disease
- * Ability to Implement specific laboratory techniques in the field of Molecular Nutrition and Nutrigenomics

Generic

- * Ability to apply critical, logical and creative thinking in their work
- * Ability to articulate knowledge in oral and written presentations. Ability to carry out their work in English (language internationally recognized in the discipline)
- * Learn to incorporate scientific advances to the own professional field
- * Ability to formulate hypothesis, design and successfully implement pilot studies in the field of molecular nutrition and nutrigenomics
- * Respect for ethics and intellectual integrity
- * Ability to collect and systematize the research and professional literature of the discipline. Ability to critically analyze relevant literature
- * Ability to analyze data and draw conclusions from research results
- * Ability to work inter-disciplinary, in an autonomous way and with initiative. Ability and flexibility to solve problems effectively
- * Know in depth the field of Nutrigenomics and Personalized Nutrition and its impact on society

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

Range of topics

1. Characteristics of Nutrigenomic studies
2. Methods for genomic studies.
3. Methods for transcriptomic studies.
4. Microarrays.
5. Technical aspects of proteomics
6. Applications of proteomics
7. Approach to metabonomic studies
8. Therapeutic Applications

Syllabus

9. Applications in the food sector

Teaching methodology

In-class work activities (0.72 credits, 18 hours)

Modality	Name	Typ. Grp.	Description	Hours
Theory classes	Lectures	Large group (G)	Introduction to the main aspects of specific techniques. Lectures based on power-point schemes.	11
Seminars and workshops	Web site construction	Medium group (M)	Work to prepare in further detail specific aspects of methods and techniques in Nutrigenomics. Reference material and further details will be proposed at the web site of the matter. Collaborative joint space will be proposed to share material between the students	3
Seminars and workshops	Techniques workshop	Medium group (M)	Work to prepare in further detail specific methodological aspects. This activity is intended for students following path B. Students should contact the professor who is going to propose the subject to develop. The deadline to deliver the work is the day and time scheduled for the assessment test.	1
Practical classes	Tasks in class	Medium group (M)	Go in deep detail on practical aspects of methods and techniques in Nutrigenomics. Reference material for study, consultation and further details will be proposed by the professor.	1
Assessment	Assessment test	Large group (G)	To assess the comprehension of the matter and the acquisition of the programmed competences Questions and/problems to show up that the competences have been acquired	2

At the beginning of the semester a schedule of the subject will be made available to students through the UIB digital 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 Aula Digital platform.

Distance education tasks (2.28 credits, 57 hours)

Modality	Name	Description	Hours
Individual self-study	Tasks	Go in deep detail on specific aspects of methods and techniques in Nutrigenomics.	37

Syllabus

Modality	Name	Description	Hours
		Reference material for study, consultation and further details will be proposed at the web site of the matter.	
Group self-study	Web site construction	Go in deep detail on specific aspects of methods and techniques in Nutrigenomics. Reference material for study, consultation and further details will be proposed at the web site of the matter. Collaborative joint space will be proposed to share material between the students	20

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

The activities will be scored between 0 and 10. The weighted average of the overall score obtained after considering the different sections must be at least 5 to consider the subject overcome. The ratings of the different sections that do not reach the value of 4.5 (out of 10) will not compute to obtain the final score.

Path B is proposed for those students that are not able to attend face-to-face activities. Students following path A, that by the end of the semester have not reached 80% of hours of attendance, will be automatically considered under path B. Please, note that this means the need to deliver all the elements for assessment specified for path B (those submitted under path A will not be taken into account). Furthermore, informing about the absence (justified or not) does not imply that the attendance is going to be recognized.

Frau en elements d'avaluació

In accordance with article 33 of Regulation of academic studies, "regardless of the disciplinary procedure that may be followed against the offending student, the demonstrably fraudulent performance of any of the evaluation elements included in the teaching guides of the subjects will lead, at the discretion of the teacher, a undervaluation in the qualification that may involve the qualification of "suspense 0" in the annual evaluation of the subject".

Lectures

Modality	Theory classes
Technique	Observation techniques (non-retrievable)
Description	Introduction to the main aspects of specific techniques. Lectures based on power-point schemes.
Assessment criteria	Assistance and participation. Those students of path A which do not arrive to the minimum assistance requested (80% of the hours) will be considered following path B.

Final grade percentage: 20% for pathway A with a minimum grade of 1.8

Final grade percentage: 0% for pathway B

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Web site construction

Modality	Seminars and workshops
Technique	Papers and projects (retrievable)
Description	Work to prepare in further detail specific aspects of methods and techniques in Nutrigenomics. Reference material and further details will be proposed at the web site of the matter. Collaborative joint space will be proposed to share material between the students
Assessment criteria	Participation; quality of the project, delivery on time. This activity is evaluated together with the group self-study activity. For those students of path A, which do not arrive to the qualification of 4.5 (over 10), a new delivery of the improved project can be done. The deadline is the same day scheduled for the final exam
Final grade percentage:	40% for pathway A with a minimum grade of 4.5
Final grade percentage:	0% for pathway B

Techniques workshop

Modality	Seminars and workshops
Technique	Papers and projects (retrievable)
Description	Work to prepare in further detail specific methodological aspects. This activity is intended for students following path B. Students should contact the professor who is going to propose the subject to develop. The deadline to deliver the work is the day and time scheduled for the assessment test.
Assessment criteria	Quality of the project, delivery on time. This activity is evaluated together with the self-study activity.
Final grade percentage:	0% for pathway A with a minimum grade of 0
Final grade percentage:	20% for pathway B with a minimum grade of 4.5

Tasks in class

Modality	Practical classes
Technique	Objective tests (retrievable)
Description	Go in deep detail on practical aspects of methods and techniques in Nutrigenomics. Reference material for study, consultation and further details will be proposed by the professor.
Assessment criteria	Accomplishment of the tasks; delivery on time; quality of the answers. This activity is evaluated together with the 'Tasks'. For those students following path A way which do not arrive to the qualification of 4.5 (over 10), an assessment test will be planned and scheduled the same day of the final exam.
Final grade percentage:	0% for pathway A
Final grade percentage:	0% for pathway B

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Assessment test

Modality	Assessment
Technique	Extended-response, discursive examinations (non-retrievable)
Description	To assess the comprehension of the matter and the acquisition of the programmed competences Questions and/problems to show up that the competences have been acquired
Assessment criteria	Content and quality of the answers

Final grade percentage: 0% for pathway A

Final grade percentage: 50% for pathway B with a minimum grade of 4.5

Tasks

Modality	Individual self-study
Technique	Extended-response, discursive examinations (retrievable)
Description	Go in deep detail on specific aspects of methods and techniques in Nutrigenomics. Reference material for study, consultation and further details will be proposed at the web site of the matter.
Assessment criteria	Accomplishment of the tasks; delivery on time; quality of the answers.

This activity is evaluated together with the 'Tasks in class'. For those students following path A way which do not arrive to the qualification of 4.5 (over 10), an assessment test will be planned and scheduled the same day of the final exam

Final grade percentage: 40% for pathway A with a minimum grade of 4.5

Final grade percentage: 30% for pathway B with a minimum grade of 4.5

Web site construction

Modality	Group self-study
Technique	Papers and projects (non-retrievable)
Description	Go in deep detail on specific aspects of methods and techniques in Nutrigenomics. Reference material for study, consultation and further details will be proposed at the web site of the matter. Collaborative joint space will be proposed to share material between the students
Assessment criteria	Participation; quality of the project, delivery on time.

Final grade percentage: 0% for pathway A

Final grade percentage: 0% for pathway B

Resources, bibliography and additional documentation

Basic bibliography

Periodical publications: Nature Methods, Current Opinion in Biotechnology, Trends in Biotechnology, and on
Web pages on Omic Techniques