



Academic year	2012-13
Subject	10277 - Methods and Techniques in Nutrigenomics and Personalised Nutrition
Group	Group 1, 2S
Teaching guide	A
Language	English

## Subject identification

<b>Subject</b>	10277 - Methods and Techniques in Nutrigenomics and Personalised Nutrition
<b>Credits</b>	0.45 in-class (11.25 hours) 2.55 distance (63.75 hours) 3 totals (75 hours).
<b>Group</b>	Group 1, 2S(Campus Extens)
<b>Teaching period</b>	2nd semester
<b>Teaching language</b>	Spanish

## Lecturers

Lecturers	Timetable for student attention					
	Starting time	Finishing time	Day	Start date	Finish date	Office
Francisca Serra Vich <a href="mailto:francisca.serra@uib.es">francisca.serra@uib.es</a>	There are no defined sessions					

## Degrees where the subject is taught

Degree	Character	Course	Studies
Master's Degree in Nutrigenomics and Personalized Nutrition	Optional		Postgraduate degree

## Contextualisation

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.

## Requirements

### Recommendable

Knowledge on Nutrigenomics and good comprehension in English is advisable.

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

## Skills

### Specific

1. Ability to collect and systematize the research and professional literature of the discipline.





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2. Ability to critically analyze relevant literature.
3. Ability to articulate knowledge in oral and written presentations. Ability to carry out their work in English (language internationally recognized in the discipline).
4. Know the capabilities and possibilities of ICT in the area of discipline.
5. Learn to design and successfully implement pilot studies in the field of molecular nutrition and nutrigenomics.
6. Implement proper statistical analysis in the field of nutrigenomics.
7. Implement specific laboratory techniques in the field of Molecular Nutrition and Nutrigenomics.

### Generic

1. Ability to apply critical, logical and creative thinking in their work.
2. Learn to incorporate scientific advances to the own professional field.
3. Ability to work inter-disciplinary, in an autonomous way and with initiative.
4. Ability and flexibility to solve problems effectively.
5. Ability to formulate hypotheses and design studies appropriate for its verification.
6. Ability to analyze data and draw conclusions from research results.
7. Respect for ethics and intellectual integrity.
8. Ability to appreciate and participate in teamwork.
9. Awareness that advanced knowledge provides leadership in the specialty area.
10. Understand the value of the acquired knowledge for the community.
11. Ability to be engaged in aspects of contemporary society.
12. Understanding the relationship between nutrition and health.
13. Understanding the relationship between diet and disease.
14. Know in depth the field of Nutrigenomics and Personalized Nutrition and its impact on society.
15. Integrate knowledge of the main metabolic pathways and the role of nutrients in health and disease.

## Content

### Theme content

1. Characteristics of nutrigenomics study.
2. Microarrays.
3. Methods for genomic study.
4. Methods for transcriptomics study.
5. Technical aspects of proteomics.
6. Applications of proteomics.
7. Approach to metabonomics study.
8. Therapeutic Applications.
9. Food applications.

## Teaching methodology





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### In-class work activities

Modality	Name	Typ. Grp.	Description
Theory classes	Lectures	Large group (G)	Introduction to the main aspects of specific techniques.  Lectures based on power-point schemes.
Seminars and workshops	Techniques workshop	Medium group (M)	Work to prepare in further detail methodological aspects  Team groups working in a joint collaborative virtual space
Assessment	Assessment test	Large group (G)	To assess the comprehension of the matter  Questions and/problems to show up that the competences have been acquired

### Distance education work activities

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

### 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.

### Workload estimate

Modality	Name	Hours	ECTS	%
<b>In-class work activities</b>		<b>11.25</b>	<b>0.45</b>	<b>15</b>
Theory classes	Lectures	2	0.08	2.67
Seminars and workshops	Techniques workshop	8	0.32	10.67
Assessment	Assessment test	1.25	0.05	1.67
<b>Distance education work activities</b>		<b>63.75</b>	<b>2.55</b>	<b>85</b>
<b>Total</b>		<b>75</b>	<b>3</b>	<b>100</b>





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Modality	Name	Hours	ECTS	%
Individual self-study	Tasks	43.75	1.75	58.33
Group self-study	Wiki	20	0.8	26.67
<b>Total</b>		<b>75</b>	<b>3</b>	<b>100</b>

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.

## Student learning assessment

### Lectures

Modality	Theory classes
Technique	Observation techniques ( <b>Non-retrievable</b> )
Description	Introduction to the main aspects of specific techniques. Lectures based on power-point schemes.
Assessment criteria	Assistance and participation

Percentage of final qualification: 20% following path A

Percentage of final qualification: 10% following path B

### Techniques workshop

Modality	Seminars and workshops
Technique	Papers and projects ( <b>Non-retrievable</b> )
Description	Work to prepare in further detail methodological aspects Team groups working in a joint collaborative virtual space
Assessment criteria	This activity is evaluated together with the group self-study activity

Percentage of final qualification: 50% following path A

Percentage of final qualification: 25% following path B

### Assessment test

Modality	Assessment
Technique	Short-answer tests ( <b>Non-retrievable</b> )
Description	To assess the comprehension of the matter Questions and/problems to show up that the competences have been acquired
Assessment criteria	Content and quality of the answers

Percentage of final qualification: 0% following path A

Percentage of final qualification: 50% following path B





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### Tasks

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

Percentage of final qualification: 30% following path A

Percentage of final qualification: 15% following path B

### Wiki

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

Percentage of final qualification: 0% following path A

Percentage of final qualification: 0% following path B

## Resources, bibliography and additional documentation

### Basic bibliography

Periodical publications: Nature Methods, Current Opinion in Biotechnology, Trends in Biotechnology, and so on

### Complementary bibliography

- \* Afman, L and M Muller (2006). Nutrigenomics: from molecular nutrition to prevention of disease J Am Diet Assoc 106(4): 569-76
- \* Barrett, C L, T Y Kim, H U Kim, B O Palsson and S Y Lee (2006). Systems biology as a foundation for genome-scale synthetic biology Curr Opin Biotechnol 17(5): 488-92
- \* Bulyk, M L (2006). DNA microarray technologies for measuring protein-DNA interactions Curr Opin Biotechnol 17(4): 422-30
- \* Elliott, R M and I T Johnson (2007). Nutrigenomic approaches for obesity research Obes Rev 8 Suppl 1: 77-81
- \* Fichou, Y and C Ferec (2006). The potential of oligonucleotides for therapeutic applications Trends Biotechnol 24(12): 563-70

### Other resources

