



The Hebrew University of Jerusalem

Syllabus

NUTRIENT GENE INTERACTIONS - 73953

Last update 05-05-2024

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Nutritional Sciences - International Prog.

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English

Campus: Rehovot

Course/Module Coordinator: Prof. Betty Schwartz

Coordinator Email: betty.schwartz@mail.huji.ac.il

Coordinator Office Hours: Thursday 9:30-10:30

Teaching Staff:

Prof Bertha betty Schwartz

Course/Module description:

The course will address how the knowledge in nutrigenomics and nutrigenetics may potentially lead to personalized diet in order to prevent and improve nutritionally related diseases, such as cancer, obesity, type 2 diabetes, cardiovascular disease, and inflammatory diseases. Current and emerging tools for nutrigenetics and nutrigenomics research will also be introduced

Course/Module aims:

The aim of the course is to understand the relationship between nutrigenomics, nutrigenetics and nutritional systems biology and how these novel knowledge is incorporated in nutrition and health research

Learning outcomes - On successful completion of this module, students should be able to:

- 1 Differentiate the concept of nutrigenomics and nutrigenetics.
- 2 Discuss how nutrition may affect gene expression.
- 3 Discuss how nutrients affect gene expression, and how genetic variants are associated with a dietary response.
- 4 Classify technologies related with nutrigenomics and nutrigenetics.
- 5 Discuss nutrient and gene interactions as they relate to disease prevention and intervention. The diseases include cancer, obesity, type 2 diabetes, cardiovascular disease, and inflammation disease.
- 6 Discuss applications of nutrigenetics and nutrigenomics in future nutrition research.

Attendance requirements(%):

90

Teaching arrangement and method of instruction: Frontal Lectures

Course/Module Content:

- 1) Introduction: Nutrigenomics vs Nutrigenetics (I)
- 2) Introduction: Nutrigenomics vs Nutrigenetics (II)
- 3) Mono-Genomic nutritional associated diseases (I)
- 4) Mono-Genomic nutritional associated diseases (II)
- 5) Nutrient Regulation of Insulin Gene (I)
- 6) Nutrient Regulation of Insulin Gene (II)

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- 7) *Nutrition and Regulation of Cancer Genes (I)*
 - 8) *Nutrition and Regulation of Cancer Genes (II)*
 - 9) *Nutrigenetics Approach for Studying Obesity (I)*
 - 10) *Nutrigenetics Approach for Studying Obesity (II)*
 - 11) *Nutrigenetics of Myocardial Infarction (I)*
 - 12) *Genetic and nutritional control of Lipid Metabolism*
 - 13) *Nutrigenomics/genetics in Crohn's Disease*
 - 14) *Different SNP's dictate nutritional needs*

Required Reading:

Different up-to-date papers

Additional Reading Material:

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Grading Scheme:

*Essay / Project / Final Assignment / Home Exam / Referat 50 %
Presentation / Poster Presentation / Lecture/ Seminar / Pro-seminar / Research
proposal 50 %*

Additional information:

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