# DEPARTMENT OF NUTRITION AND DIETETICS

SITEIA

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# SITEIA

## NUTRITION AND METABOLISM II

| GENERAL INFORMATION | | | |
|---|---|---|---|
| SCHOOL | School of Health Sciences | | |
| DEPARTMENT | Nutrition and Dietetics | | |
| LEVEL OF STUDIES | Undergraduate | | |
| COURSE CODE | YD211 | Semester | 4th |
| COURSE TITLE | NUTRITION AND METABOLISM II (MACRONUTRIENTS) | | |
| TEACHING ACTIVITIES | | HOURS PER WEEK | CREDITS |
| Lectures | | 4 | 6 |
| TYPE OF COURSE | Mandatory | | |
| PREREQUISITE COURSE | No | | |
| TEACHING LANGUAGE | English | | |
| OFFERED TO ERASMUS STUDENTS | Yes | | |
| ONLINE COURSE PAGE (URL) | https://eclass.hmu.gr/courses/YD211/ | | |
| LEARNING OUTCOMES | | | |
| Nutrients that are needed in large amounts are called macronutrients. There are three classes of macronutrients: carbohydrates, lipids, and proteins. Macronutrients are carbon-based compounds that can be metabolically processed into cellular energy through changes in their chemical bonds. The chemical energy is converted into cellular energy known as ATP that is utilized by the body to perform work and conduct basic functions. The course focuses on the interconversion of macronutrients, the energy they offer and how a nutritionist-dietitian can utilize them in the diet (glycemic index, glycemic load etc.). | | | |
| General abilities | | | |
| • In the context of this course:<br>• The trainee acquires knowledge in the individual metabolic pathways, which constitute the main possibilities of utilization of macronutrients, carbohydrates, lipids, proteins. | | | |

• The trainee understands the logic that governs the metabolic processes of macronutrients (carbohydrates, lipids, and proteins), their interaction and their utilization in the phenomenon of life.
• Finally the learner learns to organize, analyze and explain experimental data related to the macronutrients and functional components of food.

**CONTENT OF THE COURSE**

- The study of the role of the three main nutrients of food in the human diet. The need for their participation in the diet and to highlight their interactions at the metabolic level, as well as the problems created by their deficient or unbalanced intake.
- Structure and characteristics of carbohydrates. Digestion and absorption of carbohydrates. Contribution of carbohydrates to the structure and function of the human body. Glycemic Index, Glycemic Load, Satiety Index, Insulin Index, Applications in Modern Dietetics.
- Structure and properties of proteins-amino acids. Digestion and absorption of proteins. Human requirements for amino acid proteins, biological value of proteins, ways of calculating them. Protein sources, bioavailability of amino acids. Disorders of insufficient or excessive intake of proteins-amino acids.
- -Structure and properties of fats found in food, digestion and absorption of fats. Human needs for fats, essential fatty acids. Effect of fat intake and type of fatty acids on health. Problems with fat metabolism. Disorders related to unbalanced intake and fat metabolism.
- Study of digestion, absorption, bioavailability and metabolism of proteins, vitamins, minerals and water, as well as their interactions. Interactions between nutrients and metabolic intermediates. Effect of nutrient metabolism on body function. Individual energy requirements and body composition.

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo - through internet during CONVID19 measures |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>• Email, Skype (communication with students) |
| **WAYS OF TEACHING** | |

| *Activities* | *Workload of semester* |
|---|---|
| Lectures (2X12) | 52 |
| Experiential activities | 0 |
| Homework | 20 |
| Reading | 48 |
| **Overall** | **120** |

| | |
|---|---|
| **STUDENTS' EVALUATION** | 7. Final exam test by critical written questions<br>8. Homework and class presentations of group projects<br>9. Group Discussions<br>10. Self-Assessments<br>11. Attendance and Participation<br>12. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students. |

| RECOMMENDED LITERATURE |
| --- |
| • Introduction to Nutrition and Metabolism 5th Edition, by David A. Bender, ISBN-13: 978-1466572249, ISBN-10: 1466572248<br>• Advanced Nutrition and Human Metabolism Sareen S. Gropper (Author) Jack L. Smith (Author), ISBN-13: 978-1133104056, ISBN-10: 1133104053<br>• Nutrition and Metabolism: An Integrated Approach, Evelyn Howard (Editor), ISBN-13: 978-1647400279. ISBN-10: 1647400279<br>• Understanding Nutrition and Metabolism, Elsa Holt (Editor), ISBN-13: 978-1641164207. ISBN-10: 1641164204<br>• Nutrition and Metabolism in Sports, Exercise and Health: Kang, Jie, 9781138687585 |

FOOD MICROBIOLOGY AND HYGIENE

| GENERAL INFORMATION | | | |
|---|---|---|---|
| SCHOOL | School of Health Sciences | | |
| DEPARTMENT | Nutrition and Dietetics | | |
| LEVEL OF STUDIES | Undergraduate | | |
| COURSE CODE | YD237 | Semester | 4th |
| COURSE TITLE | FOOD MICROBIOLOGY AND HYGIENE | | |
| TEACHING ACTIVITIES | | HOURS PER WEEK | CREDITS |
| Lectures | | 4 | 5 |
| TYPE OF COURSE | Mandatory | | |
| PREREQUISITE COURSE | No | | |
| TEACHING LANGUAGE | English | | |
| OFFERED TO ERASMUS STUDENTS | Yes | | |
| ONLINE COURSE PAGE (URL) | https://eclass.hmu.gr/courses/YD237/ | | |

LEARNING OUTCOMES

The aim of the course is to teach students the sources of food contamination, the types of food hazards and how to deal with them in food establishments. The training of dietitians in matters of hygiene is a necessary condition for working in places where they directly or indirectly come into contact with food intended for eating. The course includes a laboratory with mandatory attendance for the final documentation of the training, according to the requirements of EFSA or relevant certification bodies for food safety.

General abilities

It is expected that upon completion of the course, students will be able to:

- Students acquire the basic knowledge of microbiology and food hygiene, focusing on the relationships of microorganisms with food and humans.
- Supervise the design and implementation of food safety and hygiene guidelines and food services.
- Correctly interpret the findings of recent scientific research on microbiology and food hygiene problems.
- Summarize and evaluate the literature on current research activity in food hygiene and microbiology

CONTENT OF THE COURSE

- The most important microorganisms in microbiology and food hygiene (fungi, yeasts, bacteria) -morphological, cultural, physiological and biochemical characteristics of them, reproduction, relationship with food and public health).
- Nutrition of microbes, their food types and effect of physicochemical factors on the growth and activities of microbes (temperature, pH, radiation, pressure).
- The growth of single-celled microorganisms and its parameters (number of divisions, generation time, growth rate, age of bacteria, curve and growth phases).
- Natural sources of food contamination (microflora of plants, animals, soil, water, air), food preservation principles (heat, cold, etc.).
- Microbiology, hygiene and control of water, milk, meat.
- Diseases transmitted through food contaminated with pathogenic microorganisms (foodborne infections and food poisoning - prevention measures).
- Protozoa important in microbiology and food hygiene.
- Metas important in microbiology and food hygiene.
- Viruses important in microbiology and food hygiene.

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo - through internet during CONVID19 measures |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>• Email, Skype (communication with students) |
| **WAYS OF TEACHING** | |

| *Activities* | *Workload of semester* |
|---|---|
| Lectures (3X12) | 48 |
| Experiential activities | 0 |
| Homework | 24 |
| Reading | 48 |
| **Overall** | **120** |

| | |
|---|---|
| **STUDENTS' EVALUATION** | 13. Final exam test by critical written questions<br>14. Homework and class presentations of group projects<br>15. Group Discussions<br>16. Self-Assessments<br>17. Attendance and Participation<br>18. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students. |

**RECOMMENDED LITERATURE**

- Food Microbiology and Hygiene 2nd ed. 1995 Edition, by Richard Hayes (Author), ISBN-13: 978-1461365747, ISBN-10: 1461365740
- Essential Microbiology and Hygiene for Food Professionals, By Sibel Roller, Copyright Year 2012, ISBN 9781444121490, Published April 27, 2012 by CRC Press
- Encyclopedia of Food Microbiology, 2nd Edition, Editors: Carl Batt Carl A. Batt. Editor in Chief: Richard Robinson, eBook ISBN: 9780123847331

- Essential Microbiology and Hygiene for Food Professionals, BySibel Roller, Edition1st Edition, Imprint CRC Press, DOIhttps://doi.org/10.1201/b13524, Pages240, eBook ISBN9780429102783
- Essential Microbiology and Hygiene for Food Professionals Paperback – 27 April 2012, by Sibel Roller (Author), ISBN-10 1444121499

# CLINICAL NUTRITION II

| GENERAL INFORMATION | | | |
|---|---|---|---|
| SCHOOL | School of Health Sciences | | |
| DEPARTMENT | Nutrition and Dietetics | | |
| LEVEL OF STUDIES | Undergraduate | | |
| COURSE CODE | YD31 | Semester | 6th |
| COURSE TITLE | CLINICAL NUTRITION II | | |

| TEACHING ACTIVITIES | HOURS PER WEEK | CREDITS |
|---|---|---|
| Lectures | 2 | 2 |
| Tutorials | 2 | 2 |
| Practical Exercises | 2 | 2 |
| | 6 | 6 |
| | | |

| | |
|---|---|
| TYPE OF COURSE | Mandatory |
| PREREQUISITE COURSE | No |
| TEACHING LANGUAGE | English |
| OFFERED TO ERASMUS STUDENTS | Yes |
| ONLINE COURSE PAGE (URL) | https://eclass.hmu.gr/courses/YD31/ |

LEARNING OUTCOMES

The aim of the course is to provide an in depth understanding of the principles and the use of Medical Nutrition Therapy (MNT) (or Clinical nutrition) within the context of secondary and tertiary health prevention. The students gain knowledge in relation to the physiology and epidemiology of several diseases, and the use of evidence-based nutritional guidelines for diseases' treatment. By the end of the course, students are expected to:

- Describe the diseases' epidemiology in adulthood
- Identify high risk patients
- Assess the nutritional status of acute and chronic disease patients
- Make and prioritize nutrition diagnoses for patients with acute or chronic diseases of gastrointestinal tract/liver/ pancreas/bladder/kidneys and cancer
- Decide and describe the nutrition intervention and nutrition counseling for the acute or chronic diseases of gastrointestinal tract/ liver/ pancreas/ bladder/ kidneys and cancer
- Supervise the patient diet and guide him/her appropriately to enhance compliance with the MNT

- Monitor and evaluate the nutrition intervention (MNT) using validated markers and outcomes and redesign the nutrition intervention according to the patients' needs

**General abilities**

In the context of this course the trainee develops general skills in:
• scientific literature search, analysis, and synthesis by using the appropriate technology
• critical thinking for deciding on the proper MNT strategy
• team working
• working in interdisciplinary groups
• Finally, the trainee learns to develop presentation and writing skills

**CONTENT OF THE COURSE**

The content gives emphasis on the nutrition assessment, nutrition diagnosis, nutrition intervention and nutrition monitor and evaluation of patients with the aim to improve their health and quality of life. Specifically, the course covers the following topics:

- Medical nutrition therapy (definition, types, routes of feeding)
- Gastroesophageal reflux
- Inflammatory Bowel Diseases (irritable bowel and Crohn's disease)
- Alcoholic and non-alcoholic liver disease
- Cirrhosis
- Acute and chronic pancreatitis
- Acute and chronic bladder disease
- Dysphagia
- Cancer
- Acute and chronic kidney disease

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo - through internet during CONVID19 measures |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>• Email, Skype (communication with students) |

WAYS OF TEACHING

| Activities | Workload of semester |
|---|---|
| Lectures (2X12) | 24 |
| Tutorials | 24 |
| Literature research and critical reading | 10 |
| Laboratory exercises | 24 |
| Homework | 10 |
| Reading | 58 |
| **Overall** | **150** |

**STUDENTS' EVALUATION**

19. Final written exam test
20. Homework and class presentations of group coursework
21. Attendance and participation in course discussions
22. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students.

**RECOMMENDED LITERATURE**


- Mahan L.K., and Raymond JL. Krause's Food and The Nutrition Care process. 14th Edition, Elsevier Inc., Missouri, 2017
- Nelms M, Sucher KP, Lacey K. Nutrition therapy and Pathophysiology. 3rd Edition, Cengage Learning, Boston, 2016

# NUTRITIONAL EPIDEMIOLOGY

| GENERAL INFORMATION | | | |
|---|---|---|---|
| SCHOOL | School of Health Sciences | | |
| DEPARTMENT | Nutrition and Dietetics | | |
| LEVEL OF STUDIES | Undergraduate | | |
| COURSE CODE | YD35 | Semester | 6th |
| COURSE TITLE | NUTRITIONAL EPIDEMIOLOGY | | |

| TEACHING ACTIVITIES | HOURS PER WEEK | CREDITS |
|---|---|---|
| Lectures | 3 | 4 |

| | |
|---|---|
| TYPE OF COURSE | Mandatory |
| PREREQUISITE COURSE | No |
| TEACHING LANGUAGE | English |
| OFFERED TO ERASMUS STUDENTS | Yes |
| ONLINE COURSE PAGE (URL) | |

**LEARNING OUTCOMES**

The aim of the course is to provide an indepth understanding of the principles and the use of nutritional epidemiology within the context of public health. The trainees gain knowledge in relation to different study designs, nutritional policies, epidemiology of non-communicable diseases, and the development of evidence-based nutritional guidelines for primary and secondary prevention of non-communicable diseases and obesity. By the end of the course, students are expected to:

- understand the role of nutrition and other enviromental factors in disease aetiology,
- know the advantages and disadvantages oϕ different study desings used in nutritional epidemiology and their influence on research obervations,
- recognise the influece of socioo-economic inequalities in dietary choices and overall health,
- know and understand the importance of evidence-based practice,
- know the epidemiology of the non-communicable diseaseas.

**General abilities**

In the context of this course:

•The trainee acquires knowledge in the design and interpretation of nutritional epidemiological studies.

•The trainee understands the importance of evidence-based dietetic practice and how to best apply international and national recommendations in disease prevention and dietary management.
•Finally the trainee learns to work harmoniously in groups, to review and appraise successfully the scientific literature and to develop presentation and writing skills.dfbdf

**CONTENT OF THE COURSE**

The content gives emphasis on the use and applications of nutritional epidemiology in disease prevention. Specifically, the course covers the following topics:

- Nutrition research studies
- Causality and dietary intake
- Biochemical and physical activity indicators in nutritional studies
- Evidence-based nutritional recommendations
- Food insecurity
- Diet and cancer
- Diet and diabetes
- Diet and cardiovascular health
- Diet and obesity
- Nutritional policies

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo - through internet during CONVID19 measures |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>• Email, Skype (communication with students) |
| **WAYS OF TEACHING** | |

| *Activities* | *Workload of semester* |
|---|---|
| Lectures (2X12) | 24 |
| Learning lab | 12 |
| Essay | 10 |
| Reading | 54 |
| **Overall** | **100** |

**STUDENTS' EVALUATION**

1. Final written exam test
2. Homework and class presentations of group coursework
3. Attendance and participation in course discussions
4. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students.

RECOMMENDED LITERATURE

- Willet W. Nutritional Epidemiology. 3rd Edition, Oxford, 2013.
- Gibney, J.M., Margetts, B.M., Kearney, J.M., Arab, L., Guerrero, S.,.Public Health Nutrition. Blackwell Science Ltd., Oxford, 2004.
- Lovegrove, JA, Hodson, L, Sharma, S. Nutrition research methodologies. Hoboken, NJ: Wiley Blackwell, 2015.

# ENVIRONMENTAL Resources and Food Production

| **GENERAL INFORMATION** | | | |
|---|---|---|---|
| **SCHOOL** | School of Health Sciences | | |
| **DEPARTMENT** | Nutrition and Dietetics | | |
| **LEVEL OF STUDIES** | Undergraduate | | |
| **COURSE CODE** | YD109 | **Semester** | 2nd |
| **COURSE TITLE** | **Environmental Resources and Food Production** | | |
| **TEACHING ACTIVITIES** | | **HOURS PER WEEK** | **CREDITS** |
| Lectures | | 4 | 6 |
| **TYPE OF COURSE** | Mandatory | | |
| **PREREQUISITE COURSE** | No | | |
| **TEACHING LANGUAGE** | English | | |
| **OFFERED TO ERASMUS STUDENTS** | Yes | | |

| | |
|---|---|
| **ONLINE COURSE PAGE (URL)** | https://eclass.hmu.gr/courses/NDS109/ |

**LEARNING OUTCOMES**

Food and natural environment are in connection. Its imprint food is terms that occupy the modern concept of sustainability. Inside within the framework of the course are the students will come in contact with the environmental education, technical terms and the combination of food science on issues related to the connection between nutrition and the environment, management water resources and more generally the ecological management of food issues.

**General abilities**

• In the context of this course:
• The trainee acquires knowledge in the individual metabolic pathways, which constitute the main possibilities of utilization of macronutrients, carbohydrates, lipids, proteins.
• The trainee understands the logic that governs the metabolic processes of macronutrients (carbohydrates, lipids, and proteins), their interaction and their utilization in the phenomenon of life.
• Finally the learner learns to organize, analyze and explain experimental data related to the macronutrients and functional components of food.

**CONTENT OF THE COURSE**

- Philosophy- Ethics and Ecology: Cultivating the ethical values presented through the definitions of environmental education from the 1970s to date and the connection of the ecological crisis with man.
- The right to food and the connection of ecological creation with nutrition: A methodological approach to the teaching of its environmental footprint food.
- Footprint of food in the natural environment: a) Agriculture and food production, b) Livestock, c) The food industry, d) Transportation and distribution of food to the consumer, e) Loss and waste of food.
- The Mediterranean diet and the natural environment: issues a) awareness raising, b) behavior and c) skills development.
- -Development and respect for the environment: a) Green Paper on the environment, b) The environment as an economic asset, c) Environmental protection and sustainable development, d) Professional activity in environmental issues.
- -Guide to Legislation for the protection of the natural environment.

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo - through internet during CONVID19 measures |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>• Email, Skype (communication with students) |
| **WAYS OF TEACHING** | |

| ***Activities*** | ***Workload of semester*** |
|---|---|
| Lectures (2X12) | 52 |
| Experiential activities | 0 |
| Homework | 10 |

| | | |
|---|---|---|
| | Reading | 20 |
| | **Overall** | **82** |
| **STUDENTS' EVALUATION** | 5. Final exam test by critical written questions<br>6. Homework and class presentations of group projects<br>7. Group Discussions<br>8. Self-Assessments<br>9. Attendance and Participation<br>10. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students. | |
| **RECOMMENDED LITERATURE** | | |

- Michael P. Todaro, Stephen C Smith, Economic Development, Pearson Education, 2020 ISBN 1292291206
- Patricia Birnie, Alan Boyle, International law and the environment Catherine Redgwell.—3rd ed., ISBN 978–0–19–876422–9

## Nutrition Research Methodology

| **GENERAL INFORMATION** | | | |
|---|---|---|---|
| **SCHOOL** | School of Health Sciences | | |
| **DEPARTMENT** | Nutrition and Dietetics | | |
| **LEVEL OF STUDIES** | Undergraduate | | |
| **COURSE CODE** | YD19 | **Semester** | 3rd |
| **COURSE TITLE** | Nutrition Research Methodology | | |

| **TEACHING ACTIVITIES** | **HOURS PER WEEK** | **CREDITS** |
|---|---|---|
| Lectures | 3 | 2 |
| **TYPE OF COURSE** | Mandatory | |

| | |
|---|---|
| **PREREQUISITE COURSE** | No |
| **TEACHING LANGUAGE** | English |
| **OFFERED TO ERASMUS STUDENTS** | Yes |
| **ONLINE COURSE PAGE (URL)** | https://eclass.hmu.gr/courses/NDS188/ |

**LEARNING OUTCOMES**

The aim of the course is introduce the trainees into the basic principles of research methodology including the design of epidemiological and clinical trials, the use of research tools to collect data, issues regarding bioethics, as well as issues related to data analysis and interpretation. Participation at the learning labs will enhance the application of the theoretical knowledge into practice.

**General abilities**

In the context of this course:

•The trainee acquires knowledge in the design and interpretation of nutritional epidemiological studies.

•The trainee understands the importance of evidence-based nutrition and dietetic practice and how to best apply international and national recommendations in disease prevention and dietary management.

•Finally the trainee learns to work harmoniously in groups, to review and appraise successfully the scientific literature and to develop presentation and writing skills.

**CONTENT OF THE COURSE**

The content gives emphasis on the use and applications of research methodology on nutrition. Specifically, the course covers the following topics:

- Introduction to scientific research
- Research methodology: research hypothesis, research protocol, sample and population, errors, pilot study.
- Epidemiological studies: cross sectional, case-control and cohort studies
- Clinical trials
- Systematic reviews and meta-analysis
- Bioethics
- Reproducibility and validity of research tools
- Literature search
- Rating the quality of evidence from nutritional epidemiological studies

**TEACHING and LEARNING METHODS – EVALUATION**

| | |
|---|---|
| **DELIVERY METHODS** | Face-to-face / In vivo |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | ▪ Support of learning process through the asynchronous platform e-class<br>▪ Use of PowerPoint during lectures.<br>▪ Use of specified software e.g. citation reference manager and web<br>▪ Email, office hours (communication with students) |

| | | |
|---|---|---|
| **WAYS OF TEACHING** | ***Activities*** | ***Workload of semester*** |
| | Lectures | 12 |
| | Learning lab | 24 |
| | Essay | 14 |
| | Reading | - |
| | **Overall** | **50** |
| **STUDENTS' EVALUATION** | 11. Final written exam test<br>12. Homework and class presentations of group coursework<br>13. Attendance and participation in course discussions<br>14. Assessment criteria are referred upon e-class. Exam degrees are uploaded at e-class and exam papers are available to students. | |
| **RECOMMENDED LITERATURE** | | |


- Willet W. Nutritional Epidemiology. 3rd Edition, Oxford, 2013.
- Gibney, J.M., Margetts, B.M., Kearney, J.M., Arab, L., Guerrero, S.,.Public Health Nutrition. Blackwell Science Ltd., Oxford, 2004.
- Lovegrove, JA, Hodson, L, Sharma, S. Nutrition research methodologies. Hoboken, NJ: Wiley Blackwell, 2015.
- Friis Robert H., & Sellers Thomas A. Epidemiology and Public Health, Broken Hill Publishers LTD, Limasol, 2011.