



NUTR 301E The Mediterranean Diet: from Fiction to Facts

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Office Hours: Tuesdays 11:00-12:00 and Thursdays
17:00-18:00

Course Information:
Spring 2019

Course Description

The course is intended to teach students about the important role of nutrition on longevity and diseases related to aging. The Mediterranean diet is a type of diet located geographically in countries bordering the Mediterranean Sea. This diet has unique characteristics since it combines excellent gastronomic properties with a high and extremely healthy nutritional value. However, a series of myths or fictions have been created around the Mediterranean diet that is not real and that simply devalue this type of diet that has properties which can help to improve the health in general and to promote longevity.

The objective of this course is to show the composition of the authentic Mediterranean diet and study from a biological point of view the components that are responsible for the positive effects on health.

Course Goals and Methodology

This course is designed to be taught over one semester. The aim of the course is to introduce students to the study of the Mediterranean Diet from a double point of view; the biological reasons of its positive effects on the health and longevity and the nature and properties of typical nutrients included in this diet. This study will be complemented by the elaboration of Spanish dishes containing foods of the MD.

Goals

1. Know what is the Mediterranean Diet (MD)
2. Analyze the components of the Mediterranean Diet
3. Identify the biological effects of nutrients included in the MD
4. Determine how MD nutrients can promote good health
5. Evaluate how MD nutrients can retard aging.
6. Analyze some Spanish dishes containing components of the MD

Methodology

At the beginning of the course as starting material, students will have the syllabus. No reference textbook is available since topics included in the course are not included in only one book. Students will have access to all the necessary materials to follow the course at

the e-Learning platform called Virtual Classroom or Aula Virtual (<https://campusvirtual.upo.es/>) using the login/password provided during the course enrollment.

The course is divided into 27 sessions: an introductory session, 24 lessons, a midterm evaluation (2 sessions), and a final evaluation session. Each session lasts 1.5 hours.

This course uses an inverted class or flipped class methodology. It implies that students must prepare the class beforehand by using varied materials indicated by the teacher. These materials can be videos, papers, and web pages. Using these materials, students must answer a questionnaire that will help the teacher to prepare the class session. The answers in the questionnaire are not evaluated, it is noted that the student has answered the questionnaire, that he/she has participated and prepared the next class.

The evaluation in this course is continuous. In each of the 24 lessons, we will include evaluation activities that will be accumulated throughout the course. In this course, the daily homework assignment will be to prepare the following class using the material supplied by the professor.

Learning Objectives

1. Describe the origins of the Mediterranean Diet (MD).
2. List the basic components of the MD
3. Analyze if a diet fits the criteria of MD using the MD score (MDS)
4. Design dishes adjusted to the MD
5. Analyze epidemiological studies about the effects of MD
6. Describe the effects of MD on the health
7. Describe the diseases on which MD acts positively
8. Explain how MD prevents or mitigates the effects of human diseases
9. Define what aging is
10. List the hallmarks of aging
11. Apply the effects of MD to the causes of aging
12. Describe the active ingredients found in MD foods to fight against disease or aging
13. Analyze the molecular function target of the active ingredients of MD foods

Required Texts

Books of General Biochemistry

Books of Nutrition

The rest of the bibliography (articles, videos, and web pages) will be provided to the students as the material of the different lessons.

The origin of the graphic materials is indicated in the corresponding documents or slides.

General Course Policies

The consumption of food in class is strictly prohibited.

Cell phones, computers or tablets are required to follow the class, but only to participate in the class activities.

Course Requirements and Grading

Requirements

- Exam.

At the end of the course. It is an online exam performed in a computer room. It is composed of 30 multiple choice questions where only one option is correct, 3 short-answer questions and 1 essay question.

- Class activities.

Each lesson ends with a group or individual activity that will be reviewed by the professor. In this class, activities must be included also the extra activities.

- Participation

Students must participate in preparing each class in advance with material provided by the professor. Students that attempt the quizzes proposed by the professor on time will obtain the full grade. **Only attempt the quizzes.**

- Midterm activity

To evaluate the course in the middle of the semester, students will work in the group in an activity proposed by the professor. This activity will be graded by the professor (50%), peer-reviewed by other students (25%) and by self-evaluation by the group of students (25%). The evaluation will be done using a check-list by students.

Grading

1. Final Exam, 30%
2. Participation 20%
3. Class activities 30%: Regular classes and extra activities
4. Midterm activity 20%

Assignments dates are indicated in the calendar included below

A good final grade (**A**) may be obtained by timely delivery of all proposed tasks and participating in class. Additional activities not included in this syllabus will not be accepted to improve the final grade.

General Course Policies

Attendance and Punctuality

Attendance is mandatory at all classes. As we understand that you might fall ill or be unable to come to class (e.g. due to a religious holiday, a flight delay, a family wedding/reunion, a graduation, a job interview, etc.) at some point during the semester, you are allowed up to 4 absences. You will be responsible for the material covered and any work missed. You will not need to justify your absences (up to 4) in any way unless you miss an exam, a presentation, a quiz, etc. In this case, you must present a doctor's note (signed, stamped and dated) to be able to reschedule the exam, etc. It will still count as an absence, but you will be allowed to retake the exam, etc. We don't encourage you to use all 4 days unless you really need them as your participation grade may suffer if you are not in class. If used unwisely and you get sick late in the semester, the following penalties will apply:

On your 5th absence, 1 point will be taken off of your final grade (Spanish grade of 1-10)
On your 6th absence, 3 points will be taken off of your final Spanish grade
On your 7th absence, 5 points will be taken off of your final Spanish grade

For classes that meet once a week, each absence counts as two. For classes that meet daily, the penalties outlined above apply if you go over 6 absences (7th absence=5th absence above).

Missed or Late Work

The final activity submitted 1 week after the deadline will be graded with a decrease of the grade by 25%. After the week, the grade will be zero.

Academic Honesty

Academic integrity is a guiding principle for all academic activity at Pablo de Olavide University. Cheating on exams and plagiarism (which includes copying from the Internet) are clear violations of academic honesty. A student is guilty of plagiarism when he or she presents another person's intellectual property as his or her own. The penalty for plagiarism and cheating is a failing grade for the assignment/exam and a failing grade for the course. Avoid plagiarism by citing sources properly, using footnotes and a bibliography, and not cutting and pasting information from various websites when writing assignments.

Learning accommodations

If you require special accommodations, you must stop by the International Center to speak to Rubén (the Faculty coordinator) to either turn in your documentation or to confirm that our office has received it. The deadline is February 22nd. Rubén will explain the options available to you.

Behavior Policy

Students are expected to show integrity and act in a professional and respectful manner at all times. A student's attitude in class may influence his/her participation grade. The professor has a right to ask a student to leave the classroom if the student is unruly or appears intoxicated. If a student is asked to leave the classroom, that day will count as an absence regardless of how long the student has been in class.

Course contents

Lesson 1: What is the Mediterranean diet?

1. Historic origin of the Mediterranean diet (MD)
2. The traditional Mediterranean diet
3. The food composition of the Mediterranean diet
4. The Mediterranean diet score (MDS)
5. The pyramid of the Mediterranean diet
6. MD versus Western standard diet

Lesson 2: MD, nutrition, and aging

1. Definition of aging
2. Theories about aging
3. Hallmarks of aging and MD
4. MD and caloric restriction

Lesson 3: MD, nutrition, and health

1. Studies about the effect of MD on diseases
2. Proven effects of MD and food components
3. Diseases improved by MD
 - a. Diabetes, obesity and metabolic syndrome
 - b. Inflammation and cancer
 - c. Cardiovascular diseases
 - d. Degenerative diseases

Lesson 4: Legumes and vegetables

1. Legumes as a source of proteins and fiber
2. The savvy combination of legumes and cereals
3. Vegetables of MD with special properties
 - a. Artichokes
 - b. Garlic:
 - c. Onion
 - d. Broccoli
 - e. Asparagus

Lesson 5: Olive oil

1. The composition of the olive oil
2. Effects on cardiovascular health

Lesson 6: Oily fish and nuts

1. Oily fish and Omega-3 fatty acids
2. Nuts: A source of many types of nutrients

Lesson 7: Fruits and spices

1. Oligosaccharides: Prebiotics molecules
2. Vitamins: Required for a multitude of biochemical reactions
3. Carotenoids: Antioxidants
4. Folic acid: Nervous system development
5. Polyphenols: Antioxidants and antiaging
6. Active principles of spices: anti-cancer drugs

Extra activities

1. **Traditional market versus supermarket.** Students will visit a traditional market (Triana) and a supermarket to compare the variety, availability, and quality of food used in the preparation of dishes from the Mediterranean diet. The aim is to

compare the fresh foods that appear on the Mediterranean diet versus processed foods.

2. **Analysis of olive oil quality.** The students will carry out a tasting of extra virgin olive oils obtained from different varieties (Arbequina, Picual and Hojiblanca) and through different processes (extra virgin, virgin, refined and orujo). In the laboratory, they will analyze various quality parameters of olive oil, such as acidity and maturity.
3. **Processed food versus fresh food.** In the laboratory, students will check some nutritional parameters and quality associated with fresh foods versus processed foods. They will use various chemical and biochemical techniques
4. **Cooking traditional MD dishes.** In the cafeteria of the University, students will be able to taste various dishes of the Andalusian cuisine that follow the criteria of the Mediterranean diet. The activity continues analyzing the DM components in the dishes tasted.

Class Schedule

Time distribution table corresponding to face to face classes

Classroom	24 h
Lab and outside activities	12h
Exams	4h 30'
Course presentation	1h 30'
Total	42h

CALENDAR

Class	Date	Location	Activity
1	31/01/2019	Classroom	Presentation
2	5/02/2019	Classroom	Lesson 1: What is the Mediterranean diet?
3	7/02/2019	Classroom	Class Activity Lesson 1
4	8/02/2019	Classroom	Extra Activity 1: Visit to a traditional market
5	12/02/2019	Classroom	Lesson 2: MD, nutrition, and aging
6	14/02/2019	Classroom	Class Activity Lesson 2
7	19/02/2019	Classroom	Lesson 3: MD, nutrition, and health
8	26/02/2019	Classroom	Class Activity Lesson 3
9	5/03/2019	Classroom	Lesson 4: Legumes and vegetables
10	7/03/2019	Classroom	Class Activity Lesson 4
11	19/03/2019	Classroom	Mid Term Exam Individual
12	21/03/2019	Classroom	Mid Term Exam Group
13	26/03/2019	Classroom	Lesson 5: The olive oil
14	28/03/2019	Classroom	Class Activity Lesson 5
15	2/04/2019	Classroom	Extra Activity 2-1
16	4/04/2019	Classroom	Extra Activity 2-2
17	9/04/2019	Classroom	Lesson 5-2: The olive oil
18	11/04/2019	Classroom	Class Activity Lesson 5-2
19	23/04/2019	Classroom	Extra Activity 3-1
20	25/04/2019	Classroom	Extra Activity 3-2
21	30/04/2019	Classroom	Lesson 6: Oily fish and nuts
22	2/05/2019	Classroom	Class Activity Lesson 6
23-24	3/05/2019	Classroom	Extra Activity 4
25	14/05/2019	Classroom	Lesson 7: Fruits and spices
26	16/04/2019	Classroom	Class Activity Lesson 7
27		Classroom	Final Exam