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#### MCAS NS HN 260 syllabus

Course Title: Mediterranean Diet

Course Code and Number of Credits: MCAS NS HN 260 (3 CREDITS)

Instructor: Dr E. Lombardo PhD

#### Course Description:

This course will focus on Food and culture, and particularly on how lifestyle affects psychophysical performances and human health. Students will learn the basics of human metabolism and the main features of the Mediterranean diet. Scientific information aims to explain why the Mediterranean diet is better adapted to the needs of the human body. In addition, this course will provide students with the chance of exploring the territory and getting to know people by cooking and eating with them

Prerequisites: None

#### Mandatory Fieldtrips:

Fieldtrip at a restaurant in a farm in Solarino, a small town just out of Siracusa

#### Required Texts:

1. Reader Pack (available for purchase at MCAS, approx cost. 10 euro)

Additional Fees Payable on Site: None

#### Objectives:

Students will understand how lifestyle (e.g. food intake and physical activity) affects human health.

Students will get an overview of the main laws of chemistry and their effects on the properties of every substance.

Students will gain a general understanding of the main biochemical paths of human metabolism.

Students will learn about the chemical composition of the ingredients characterizing the Mediterranean diet.

Students will learn why the Mediterranean diet provides people with a better balanced nutrients intake.

Students will learn about functional foods, such as lactic acid bacteria, prebioticts (non-digestible food ingredients that stimulate the growth and/or activity of bacteria in the digestive system), antioxidants etc.

A chance for a cultural exchange. The course will take place in Sicily, a land that during the past centuries was ruled by many different civilizations (Greeks, Romans, Arabs, Spanish etc.). Sicilian food style was deeply affected by this rich mixture of different cultures. After learning about Mediterranean diet features and its relationships with human health, students will get the chance of cooking and tasting typical Mediterranean recipes along with Italian people and learn about how food can be an expression of people history and character.

#### Assessment:

(20%) Paper 1

(25%) Mid-term examination

(25%) Paper 2

(30%) Final examination

#### Country and Program Connection:

Students are directly engaged in this topic by participation in field trips.

The course aims not only to provide students with precious scientific health related information: being in Sicily means having the best chance to experience the wealth of colours, tastes and flavours the Mediterranean diet is made of. MCAS is located in the heart of the Mediterranean area and the resources in Syracuse allow this course to be taught in a way that would not be possible in many other parts of the world.

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## Course Outline (Semester):

Week 1	Introduction: - The Mediterranean area: geography – climate – agriculture Social, population and environmental influences on nutrition - An introduction to General Chemistry 1 – Atom structure – Elements – Molecules
	Readings: PHN : Nutritional requirements (an abstract of chapter 5) Nutritional epidemiology (an abstract of chapter 6)
	Nutritional epidemiology (an abstract of chapter o)
Maak 0	- Calculating how much food a community eats
Week 2	- An introduction to General Chemistry 2 – Energy, reactivity and chemical reactions.
	Readings: PHN:
	Evaluation of dietary intake (an abstract of chapter 8)  Measurement of energy (an abstract of chapter 9)
	Body composition (an abstract of chapter 10)
	Body composition (an abstract of onapter 10)
	- Body composition, life molecules.
Week 3	- An introduction to Organic Chemistry 1 – Life molecules – Fat and Sugars – Structure and
	chemical properties.
	Readings: PHN : Lipids (an abstract of chapter 12)
	Carbohydrates (an abstract of chapter 13)
	- Body composition, life molecules.
Week 4	- An introduction to Organic Chemistry 2 – Life molecules – Proteins and Nuclear acids -
	Structure and chemical properties.  Readings: PHN:
	Amino acids and proteins (an abstract of chapter 11)
Week 5	Digestion and metabolism     An introduction to Cell Biology – The cell - membranes and enzymes – Introduction to metabolism.
	Readings: PHN :
	- The gastrointestinal tract and food availability (an abstract of chapter 24)
Week 6	Midterm examination: short essay questions dealing with the topics covered in weeks 2-5.
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Week 7	Fall/Spring Break
Week 8	Carbohydrates and Fat metabolism – anabolic and catabolic processes – related hormones and vitamins.
	Readings: PHN:
	Carbohydrate digestion and absorption (an abstract of chapter 25) Carbohydrate metabolism (an abstract of chapter 33)
	Lipid absorption (an abstract of chapter 27)
	Lipid metabolism (an abstract of chapter 34)
	Relationship Between Vitamin E Requirement and Polyunsaturated Fatty Acid Intake in Man: a Review. International Journal for Vitamin and Nutrition Research, Seite 31 – 42, Band 70,
	2000, Heft 2 © Verlag Hans Huber, Bern
Week 9	Proteins and nucleic acids metabolism – anabolic and catabolic processes – related hormones and vitamins.
	Readings: PHN:
	Protein digestion and absorption (an abstract of chapter 26)
	Amino acid metabolism (an abstract of chapter 37)
	Assignment: Paper 1 due – a 2,000 word essay dealing with a thematic topic concerning the metabolic paths.
	Field trip: Visiting a typical Sicilian farm.
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	Visiting a restaurant in a farm, in Solarino, a small town just close to Siracusa.  The task will be visiting and interviewing professionals of the Sicilian cuisine. Students will also get the chance of preparing traditional Mediterranean recipes under the guide of those professionals. Finally students will be asked to make a paper reporting about their experience.
Week 10	Cereals, pulses and vegetables – role on human nutrition and health.
	Readings: NH: Health Benefits of Phytochemicals in Whole Foods, 173 – 188
	Possible contribution of lutein and zeaxanthin, carotenoids of the macula lutea, to reducing the risk for age-related macular degeneration: a review. Wolfgang Schalch, PhD – F Hoffmann-La Roche Ltd, Basel, Switzerland – HKJOphthalmol. Vol 4 No. 1 (Abstract) Effects of Carotenoids and Carotenoid-Tocoferol Interaction on Lipid Oxidation In Vitro. Katri Haila – University Dissertation – University of Helsinky, Department of Applied Chemistry and Microbiology – Helsinky 1999 (Abstract) ANTIOXIDANTS in science, technology, medicine and nutrition. Gerald Scott, DSc (Oxon) Professor Emeritus in Chemistry Aston University Birmingham. Published by Albion Publishing Chichester. (Abstract)
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Week 11	Red wine, olive oil, almonds - role on human nutrition and health.
	Readings: NH: Diet and the Control of Blood Lipids, 91 - 110
Week 12	Fish, meat and dairy products - role on human nutrition and health.
	Readings: NH: Fish, n-3 Polyunsaturated Fatty Acids, and Cardiovascular Disease, 133 – 150  Benefits of Long Chain omega-3 Fatty Acids (EPA, DHA): Help Protect Against Heart Disease by Annette Dickinson, Ph. D. – Council of Responsible Nutrition, June 2002 (Abstract)
	n-3 Long-chain polyunsaturated fatty acids reduce risk of coronary heart disease death: extending the evidence to the elderly. William S. Harris. Am. J. Clin. Nutr. 2003; 77:279-80. Amarican Society for Clinical Nutrition. (Abstract)
	- Omega-3 – long-chain polyunsaturated fatty acids and health benefits – Translated from << Oméga-3 et benefice santé>> published by the Centre d'Etude et d'Information sur les Vitamines, Roche Vitamines, France, Neuilly-sur-Seine. (Abstract)
Week 13	Functional foods: antioxidants, prebioticts, probiotics - role on human nutrition and health. Assignment: Paper 2 due – a 2,000 word essay dealing with a thematic topic covered in the weeks 10, 11 and 12.
	Readings: NH: Herbs as Useful Adjucts to Manage Chronic Diseases, 189 – 210 Diet and Cancer Prevention, 151 – 172
	ANTIOXIDANTS in science, technology, medicine and nutrition. Gerald Scott, DSc (Oxon) Professor Emeritus in Chemistry Aston University Birmingham. Published by Albion Publishing Chichester. (Abstract) THE ROLE OF FREE RADICALS, IRON, AND ANTIOXIDANTS IN ULTRAVIOLET RADIATION-INDUCED SKIN DAMAGE by Beth Anne Jurkiewicz – An abstract of a thesis submitted in fulfilment of the requirements for the Doctor of Philosophy degree in Radiation Biology in the Graduate College of The University of Iowa. Thesis supervisor: Adjunct Associate Professor Garry R. Buettner.
Week 14	Mediterranean diet beyond science. How food preparation affects the sense of identity of a people.  Readings: Echo of taste
	Passages of Echo of taste (English version of L'eco del gusto Emanuele Lombardo, Libreria

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Week 15	FINAL examination
	NB. All Readings are from the Reader.
	Abbreviations:
	Principles of Human Nutrition, 2nd Edition – by Martin Eastwood
	edited by Wiley-Blackwell. From now on shortened as "PHN"
	Nutritional Health, by Temple, Norman J.; Wilson, Ted; Jacobs Jr., David R. (Eds.)
	edited by Springer. From now on shortened as " NH "