

PHYSICAL CHEMISTRY OF FOODS

COURSE OUTLINE

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND NUTRITION		
EDUCATION LEVEL	<i>Undergraduate</i>		
COURSE CODE	MK511	SEMESTER	E'
COURSE TITLE	Physical Chemistry of Foods RESPONSIBLE: I. Giovanoudis		
SELF-ENDED TEACHING ACTIVITIES <i>in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniquely for the entire course, enter the weekly teaching hours and total credits</i>		WEEKLY TEACHING HOURS	CREDIT UNITS (ECTS)
Lectures		3	5
Laboratory / Application Exercises		3	
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Development Skills</i>	GENERAL INFRASTRUCTURE (<i>Background</i>)		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

Learning Outcomes

Upon successful completion of the course, the student:

1. He will have acquired basic knowledge about the basic principles of physicochemical and thermodynamic phenomena.
2. He will have acquired specialized knowledge concerning the applications of the principles of thermodynamics in food and of physicochemical phenomena in biological molecules found in food.
3. He will have understood the changes and transitions that occur in food systems during their preparation, preservation and processing.

General Skills

Adaptation to new situations

Search, analysis and synthesis of data and information

Decision making

Autonomous work

Teamwork

Work in an international environment

Work in an interdisciplinary scientific environment

Generating new research ideas

Turning theory into practice

Acquisition of the appropriate theoretical and laboratory background so that further training is possible

COURSE CONTENT

1st Week

Introduction to Physical Chemistry.

2nd Week

Thermochemistry.

3rd Week

Differential calorimetry.
 4th Week
 Endothermic and exothermic reactions.
 5th Week
 Freezing curve.
 6th Week
 Glass transition / Emulsifiers in packaging materials.
 7th Week
 Deaerator.
 8th Week
 Refiner-blender.
 9th Week
 Steam tables – Pressure and temperature conditions for adding syrup or brine.
 10th Week
 Water Vapor Tables – Phase Diagram of Water.
 11th Week
 Colloids.
 12th Week
 Ways to reduce enzyme activity.
 13th Week
 Workshop recap or recap.

TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD	Face-to-face lectures in a classroom and Laboratory / Application Exercises in suitable Laboratory/ Classroom.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Internet, e-mail, Powerpoint	
TEACHING ORGANISATION	Activity	Semester's Workload
	Lectures	39
	Individual study and preparation for lectures	40
	Laboratory / Application Exercises	26
	Individual study and preparation for the Laboratory / Application Exercises	20
	Total (25 workload hours per Credit unit)	125
STUDENT EVALUATION	The evaluation of the students is done with a final written exam, which will include multiple choice, true-false, short answer, judgment questions, as well as problem solving or a combination of the above.	

RECOMMENDED BIBLIOGRAPHY

RECOMMENDED BIBLIOGRAPHY

Fysikochimeia Trofimon. Kodikós Vivlíou ston Évdoxo: 18548661. Ékdosi: 1i Ékdosi/2011. Syngrafeís: Ritzoúlis Christos. ISBN: 978-960-418-312-8. Týpos: Sýngramma. Diathétis (Ekdótis): EKDOSEIS A. TZIOLA & YIOI A.E.
Fysikés trofimon trofimon. Kodikós Vivlíou ston Évdoxo: 86192786. Ékdosi: 1i ékd./2019. Syngrafeís: Lázou A. ISBN: 978-960-02-3497-8. Týpos: Sýngramma. Diathétis (Ekdótis): EKDOSEIS A.PAPAZISIS MONOPROSOPI IDIOTIKI KEFALAIOUCHIKI ETAIREIA.
Fysikochimeia. Kodikós Vivlíou ston Évdoxo: 68390063. Ékdosi: 1i ékd./1993. Syngrafeís: Katsános N. ISBN: 978-960-02-0448-3. Týpos: Sýngramma. Diathétis (Ekdótis): EKDOSEIS A.PAPAZISIS MONOPROSOPI IDIOTIKI KEFALAIOUCHIKI ETAIREIA.
Diepifaneiaká fainómena kai kolloeidí systímata. Kodikós Vivlíou ston Évdoxo: 11234. Ékdosi: 2i ékd./1998. Syngrafeís: Panagiótou Konstantínos. ISBN: 960-431-455-6. Týpos: Sýngramma. Diathétis (Ekdótis): Ziti Pelagía & Sia I.K.E.
FYSIKOCHIMEIA. Kodikós Vivlíou ston Évdoxo: 94690187. Ékdosi: 1i/2020. Syngrafeís: Peter Atkins, Julio de Paula, James Keeler. ISBN: 978-960-524-591-7. Týpos: Sýngramma. Diathétis (Ekdótis): IDRYMA TECHNOLOGIAS & EREVNAS-PANEPISTIMIAKES EKDOSEIS KRITIS.
Fysikochimeía gia tis Viologikés Epistímes. Kodikós Vivlíou ston Évdoxo: 77115195. Ékdosi: 1/2012. Syngrafeís: Hammes. ISBN: 978-960-99858-3-3. Týpos: Sýngramma. Diathétis (Ekdótis): SPYRIDON KOSTARAKIS.