COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
ACADEMIC UNIT	FOOD SCIENCE AND TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**FST_203**	**SEMESTER**	2nd
COURSE TITLE	BIOCHEMISTRY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures and laboratory work	3 (lect.) 2 (lab.)	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	special background
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek.
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher*

Education Area

- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students will be able to:

• Describe basic concepts related to chemistry, biochemistry and properties of biomolecules

• Know and describe the basic concepts of bioenergetics

• Describe the linked pathways of metabolism.

• Compare and contrast anabolism and catabolism.

• Describe how enzymes control metabolic reactions.

• Explain how metabolic pathways are regulated

• Explain how the reactions of cellular respiration release chemical energy.

• Describe the general metabolic pathways of carbohydrate metabolism, pentose phosphate, citric citrate and glyoxylate cycles, oxidative phosphorylation linked with respiratory chain and the metabolism of fatty acids.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

Decision-making

Working independently

Team work

Working in an interdisciplinary environment

Project planning and management

3. SYLLABUS

Introduction to Biochemistry. Basic principles of Bioenergetics, Introduction to Metabolism. Anabolic and catabolic procedures. Energy conjugation. ATP as the "molecular unit of currency". Electron carriers.

Stages and general principles in intermediary metabolism. Biological catalysis. Enzymes: Terminology, kinetics, specificity, requirements, co-enzymes, cofactors. Principles of Metabolic Regulation. Carbohydrate metabolism: Glycolysis, gluconeogenesis, glycogenolysis, glycogenesis. Cori cycle. Pentose phosphate shunt. The Citric Acid Cycle. The Glyoxylate Cycle. Oxidative phosphorylation and respiratory chain. Photosynthesis. Calvin cycle. Fatty Acid catabolism and anabolism, beta oxidation.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures and Laboratory practice face to face.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. Notes with the content of the course are uploaded on the internet, where from the students can freely download them using a password which is provided to them at the beginning of the studies.
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination,*	1. Written examination after the end of the semester. The mark constitutes the 75% of the final grade ($G_{75\%}$). Minimum passing grade: 5. 2. Reports following completion of each laboratory experiment. The mean mark constitutes the other 25% of the final grade ($G_{25\%}$). Minimum passing grade: 5. The final grade for the course is calculated by the final grade in the Lab (25%) and the grade of the final written examination (75%). The student must have secured a minimum grade of 5 in both Lab and the final written examination.

Activity	***Semester workload***
Lectures (3 conduct hours per week x 13 weeks)	39
Laboratory work (2 conduct hours per week x 10 weeks)	20
Laboratory reports (2 hours per week x 8 reports)	16
Final examination (3 conduct hours)	3
Hours for private study of the student	47
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***125 hours (total student work-load)***

public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

ΒΙΟΧΗΜΕΙΑ, BERG J.M., TYMOCZKO J.L., STRYER L., ΙΤΕ ΠΑΝΕΠΙΣΤΗΜΙΑΚΕΣ ΕΚΔΟΣΕΙΣ ΚΡΗΤΗΣ

- Related academic journals: