

## MODULE LAYOUT

### 1. GENERAL

<b>SCHOOL</b>	FOOD and NUTRITIONAL SCIENCES		
<b>DEPARTMENT</b>	FOOD SCIENCE and HUMAN NUTRITION		
<b>STUDY LEVEL</b>	Undergraduate		
<b>MODULE CODE</b>	3380	<b>SEMESTER</b>	4
<b>MODULE TITLE</b>	FOOD BIOCHEMISTRY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>ECTS</b>
Lectures, Practical Courses and Tutorial Courses		5	5
<b>COURSE TYPE</b>	Food Science Course		
<b>PREREQUISITES</b>	Organic Chemistry, Biochemistry, Food Chemistry		
<b>LANGUAGE</b>	Greek		
<b>IS THE COURSE OFFERED for ERASMUS STUDENTS?</b>	YES (in English)		
<b>ΗΛΕΚΤΡΟΝΙΚΗ ΣΕΛΙΔΑ ΜΑΘΗΜΑΤΟΣ (URL)</b>	<a href="https://oeclass.aua.gr/eclass/courses/ETDA133/">https://oeclass.aua.gr/eclass/courses/ETDA133/</a>		

### 2. LEARNING OUTCOMES

<b>Learning outcomes</b>
<p>The course is a <b>basic introductory course</b> on concepts of Food Biochemistry. <b>The course aims at</b> studying and understanding of the biochemical and physicochemical processes and changes that take place during the conversion of the raw material, such as meat, milk, cereals, fruits and vegetables, into a food product or a new type of food. Finally, the course aims at training students in basic methodological and experimental approaches in the field of Food Biochemistry.</p> <p><b>Upon successful completion of this course, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Understand the basic biochemical changes during food processing and production</li> <li>• Integrate the knowledge in designing new methodological and experimental approaches in the field of Food Science and Technology</li> <li>• Integrate the knowledge in the study and understanding of other related sciences</li> <li>• Study independently and critically</li> <li>• Present their knowledge in specific and non-specific audiences with completeness and clarity</li> </ul>
<b>General Skills</b>
<ul style="list-style-type: none"> <li>• Developing new research ideas</li> <li>• Work in a multidisciplinary environment</li> <li>• Independent Work</li> <li>• Teamwork</li> </ul>

### 3. MODULE CONTENT

<b>MEAT AND FISH</b>
<ol style="list-style-type: none"> <li>1. Connective tissue, contractile proteins and myoglobin</li> <li>2. The muscle contraction</li> <li>3. Post-mortem biochemical changes in muscles</li> </ol>
<b>MILK</b>
<ol style="list-style-type: none"> <li>1. Biosynthesis of milk</li> <li>2. Composition of milk</li> <li>3. Biochemical transformations in dairy products</li> </ol>

**CEREALS**

1. Structure and composition of the seed
2. Biochemical reactions in brewing of beer
3. Biochemical reactions in bread-making

**FRUITS AND VEGETABLES**

1. Climacteric respiration
2. Color and structure changes
3. Aroma and taste

**BROWNING REACTIONS**

1. Phenolic compounds and enzymatic browning
2. Methods of controlling the enzymatic browning

**4. TEACHING and LEARNING METHODS - Evaluation**

<b>TEACHING METHOD</b>	In Class or via Internet if needed															
<b>USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES</b>	<ol style="list-style-type: none"> <li>1. E-material (PPT)</li> <li>2. Internet</li> </ol>															
<b>TEACHING ORGANISATION</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9ead3;"><i>Activity</i></th> <th style="background-color: #d9ead3;"><i>Working load</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">80</td> </tr> <tr> <td>Practical Courses and Tutorial Courses</td> <td style="text-align: center;">45</td> </tr> <tr> <td>Team Project</td> <td></td> </tr> <tr> <td>Field Trip /</td> <td></td> </tr> <tr> <td>Independent Study</td> <td></td> </tr> <tr> <td style="text-align: center;"><b>Total (25 h of working load per one ECTS)</b></td> <td style="text-align: center;"><b>125</b></td> </tr> </tbody> </table>		<i>Activity</i>	<i>Working load</i>	Lectures	80	Practical Courses and Tutorial Courses	45	Team Project		Field Trip /		Independent Study		<b>Total (25 h of working load per one ECTS)</b>	<b>125</b>
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<b>STUDENTS EVALUATION</b>	<p>I. Written exams (100 %), including:</p> <ul style="list-style-type: none"> <li>• Answer Questions</li> <li>• Essays</li> <li>• Comparative Evaluation of Topics from Theory and Practical Courses</li> </ul>															

**5. BIBLIOGRAPHY**

1. Alais C. & G. Linden (1991) Food Biochemistry, Ellis Horwood Ltd., UK
2. M.J. Berg, L.J. Tymoczko, G.J. Gatto & L. Stryer (2021) ISBN 978-960-524-495-8
3. Brody T. (1998) Nutritional Biochemistry, Academic Press Inc., UK
4. Day P.M. & J.B. Harborne (1997) Plant Biochemistry, Academic Press Inc., SD, USA
5. Eskin M.N.A. (1990) Biochemistry of Foods, Academic Press Inc., UK
6. Fennema O.R. (1996) Food Chemistry, Marcel Dekker Inc., NY
7. Hui Y.H. (2006) Food Biochemistry and Food Processing, Blackwell Publishing, Iowa, USA