

## COURSE OUTLINE

### 1. GENERAL

<b>SCHOOL</b>	AGRICULTURAL SCIENCES		
<b>DEPARTMENT</b>	FOOD SCIENCE AND TECHNOLOGY		
<b>LEVEL OF COURSE</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	<b>FST_E13</b>	<b>SEMESTER OF STUDIES</b>	Spring
<b>COURSE TITLE</b>	EPIDEMIOLOGY OF FOODBORNE DISEASES		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>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</i>	<b>TEACHING HOURS PER WEEK</b>	<b>ECTS CREDITS</b>	
Lectures	3		
Laboratory exercises	2		
<b>TOTAL</b>	<b>5</b>	<b>5</b>	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Elective Special background		
<b>PREREQUISITE COURSES:</b>	No prerequisite courses		
<b>TEACHING AND ASSESSMENT LANGUAGE:</b>	Greek		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	NO		
<b>COURSE WEBPAGE (URL)</b>	<a href="https://eclass.upatras.gr/courses/FST201/">https://eclass.upatras.gr/courses/FST201/</a>		

### 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*

**The course is an introduction to Epidemiology** and provides data on the epidemiological investigation of diseases related to human consumption of food (i.e., foodborne diseases).

**The course's main objective** is the comprehension by the students of the fundamental principles and concepts of Epidemiology related to Public Health and the cause of foodborne illness. The course also aims to familiarize the students with the measures of occurrence for the foodborne diseases (mainly of microbial etiology), as well as with the tracking and control of the microbial foodborne pathogens. This course is orientated to the study of the frequency, distribution and development of diseases related to food consumption, and the characteristics of these diseases.

**Upon successful completion of this course the student will be able to:**

- Identify potential hazards in foods that may lead to foodborne illness.
- Classify foodborne diseases based on the type of sequelae (e.g., foodborne infections and intoxications).
- Describe and define basic epidemiological terms of Public Health (e.g., epidemic, case), the characteristics of infectious agents (e.g., pathogenicity, virulence) and the measures of

occurrence for the infectious agents and foodborne diseases (e.g., prevalence, case fatality).

- Assess the burden of both domestically and globally acquired foodborne illnesses based on the latest epidemiological data, but also will be able to consider the possible future of foodborne illness.
- Elucidate the etiological agent, symptoms, and mode of transmission for the disease under study, as well as to recognize the value of standard laboratory methods for the confirmation of major microbial foodborne pathogens, exploiting the use of phenotypic and molecular methods for the identification of microorganisms.
- Construct the epidemic curve of an outbreak, investigate possible foodborne origin of the outbreak, and implement procedures to investigate foodborne illness.

### 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?*

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

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Decision-making
- Teamwork
- Working in an international environment
- Working in an interdisciplinary environment
- Production of free, creative and inductive thinking

### 3. SYLLABUS

1. Introduction to Epidemiology
2. Classification of foodborne diseases
3. Characteristics and transmission of infectious agents
4. Measures of disease frequency
5. Epidemiological data on foodborne diseases
6. Major foodborne diseases of microbial etiology
7. Bioterrorism and food safety
8. Standardization of microbial foodborne pathogens
9. Epidemiological surveillance of diseases
10. Outbreaks
11. Epidemic curves
12. Investigation of foodborne disease outbreaks
13. Case studies of foodborne disease outbreaks

### 4. TEACHING AND LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face (Lectures in the classroom)
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Information and Communication Technologies (ICTs) (e.g., PowerPoint) in teaching.  PowerPoint presentations for each thematic area described in the lecture content of the course, are uploaded as PDF

	files on the internet (e-class platform), where students can freely download them by using their university credentials.														
<p style="text-align: center;"><b>TEACHING METHODS</b></p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>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.</i></p> <p><i>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</i></p>	<table border="1"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Semester Workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">39</td> </tr> <tr> <td>Study &amp; analysis of bibliography</td> <td style="text-align: center;">60</td> </tr> <tr> <td>Essay writing</td> <td style="text-align: center;">23</td> </tr> <tr> <td>Presentation</td> <td style="text-align: center;">3</td> </tr> <tr> <td colspan="2"><b>Total number of hours for the Course (25 hours of workload per ECTS credit)</b></td> </tr> <tr> <td></td> <td style="text-align: center;"><b>125</b></td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester Workload</i>	Lectures	39	Study & analysis of bibliography	60	Essay writing	23	Presentation	3	<b>Total number of hours for the Course (25 hours of workload per ECTS credit)</b>			<b>125</b>
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<p style="text-align: center;"><b>STUDENT PERFORMANCE EVALUATION</b></p> <p><i>Description of the evaluation procedure</i></p> <p><i>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, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>I. Final written exam (70%) which includes:</p> <ul style="list-style-type: none"> <li>- Multiple-choice questions (40%)</li> <li>- True or False questions (20%)</li> <li>- Short answer questions (10%)</li> </ul> <p>II. Essay (teamwork) writing (30%)</p> <ul style="list-style-type: none"> <li>- Study and analysis of bibliography (10%)</li> <li>- Written work (Word text) (10%)</li> <li>- Public presentation (PowerPoint) (10%)</li> </ul> <p><u>Grading scale:</u> 0.5 to 10.0  <u>Minimum passing grade (final written exam):</u> 3.5  <u>Examination time:</u> 2 hours</p> <p>The final grade for the course is the sum of 70% grade in the final written exam plus 30% in essay writing, provided that the minimum passing grade has been achieved (i.e., <math>\geq 3.5</math>) in the final written exam.</p> <p>All performance evaluation criteria are announced in the introductory lecture of the course, which is posted and easily accessible by students on the online page of the course at the e-class platform.</p>														

## 5. ATTACHED BIBLIOGRAPHY

### - Suggested bibliography:

1. Celentano, D.D., Szklo, M. (2019). *Gordis epidemiology* (6<sup>th</sup> edn.). Elsevier, UK, ISBN: 9780323552295.
2. Dodd, C.E.R., Aldsworth, T.; Stein, R.A., Cliver, D.O., & Riemann, H.P. (2017). *Foodborne diseases* (3<sup>rd</sup> edn.). Academic Press, UK, ISBN 9780123850072.
3. IAFP (International Association for Food Protection). (2011). *Procedures to investigate foodborne illness* (6th edn.). New York, NY: Springer.
4. Lasky, T. (2007). *Epidemiologic principles and food safety*. New York, NY: Oxford University Press, Inc.
5. Ryan, J.R. (2016). *Biosecurity and bioterrorism: containing and preventing biological threats* (2<sup>nd</sup> edn.). Butterworth-Heinemann Publications, ISBN: 978-0-12-802029-6.

### - Suggested scientific journals:

1. Emerging Infectious Diseases

## 2. Foodborne Pathogens and Diseases