

COURSE OUTLINE	MASTER'S THESIS
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## 1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MOLECULAR BIOLOGY AND GENETICS		
LEVEL OF STUDIES	LEVEL 7		
COURSE CODE	PHABIOTECH 5	SEMESTER	C
COURSE TITLE	DIPLOMA THESIS		
<b>TEACHING ACTIVITIES</b> <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits. Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
		TEACHING HOURS PER WEEK	ECTS CREDITS
			30
COURSETYPE	SCIENTIFIC AREA		
Background, General Knowledge, Scientific Area, Skill Development			
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE URL			

## 2. LEARNING OUTCOMES

<b>LEARNING OUTCOMES</b> <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire upon successful completion of the course are described.</i> <i>Refer to Appendix A</i> <ul style="list-style-type: none"> <li>• Description of the Level of Learning Outcomes for each cycle of study in accordance with the Qualifications Framework of the European Higher Education Area</li> <li>• Descriptive Indicators for Levels 6, 7 and 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</li> <li>• Guidelines for writing Learning Outcomes</li> </ul>
<b>Aim of the course</b> <p>The objectives of the diploma thesis are: a) to enhance the research skills of postgraduate students and their ability to produce high-quality scientific work by addressing (or reviewing, depending on the student's choice) a specific topic or problem, b) to develop the ability to critically evaluate information and effectively utilize scientific literature, c) to gain experience in writing a scientific paper, involving the collection, analysis, recording and processing of experimental or research data, d) to refine and cultivate critical thinking skills. For students selecting a practical thesis, an additional objective is the adaptation to the laboratory environment and the development of relevant skills and competencies.</p> <p><b>Postgraduate students have the option to choose between an experimental thesis and a literature review thesis.</b></p> <p>Upon successful completion of <b>the experimental diploma thesis</b>, the postgraduate students will:</p> <ul style="list-style-type: none"> <li>➤ have developed scientific research skills: they will be able to formulate research questions, design and implement experimental or theoretical protocols and adapt their research to unforeseen conditions or new data.</li> </ul>

- be capable of quantitatively and qualitatively analysing data using appropriate methodologies and tools, drawing well-supported conclusions and assessing the reliability and validity of findings.
- be able to critically engage with literature sources, identify gaps in knowledge and position their research within the broader context of the scientific community.
- have the ability to leverage knowledge from different scientific fields to address complex problems, fostering an interdisciplinary approach to research.
- have gained experience with specialized experimental tools, methodologies or computational programmes relevant to their research area.
- be able to synthesize and present research findings clearly and accurately, both in written form (*e.g.* thesis) and oral presentations.
- have developed critical thinking skills and will be able to evaluate the methodological approaches and findings of their study, suggesting improvements or new research directions.
- understand and apply the ethical and deontological standards of scientific research, ensuring accuracy, transparency and ethical conduct in their studies.
- have enhanced their collaborative skills with other researchers through participation in group research projects, recognizing the value of collective work.
- have developed self-organization and time management skills: they will be able to organize their research work, set realistic goals and manage their time effectively to complete their thesis within deadlines.
- be capable of correctly and thoroughly citing literature sources, providing proper references and citations and avoiding plagiarism.

Upon successful completion of **the literature review diploma thesis**, the postgraduate students will:

- be able to critically evaluate the literature: identifying, analysing and comparing existing research, studies and theoretical approaches, recognizing gaps and potential contradictions.
- be capable of synthesizing information from various sources to construct a comprehensive understanding of the subject under study, drawing clear and evidence-based conclusions.
- be able to recognize current research trends by identifying and understanding the latest developments within the specific research field, while contextualizing these within the broader scientific framework.
- be able to formulate research questions based on the literature review and propose future research directions to address these questions.
- be able to accurately and appropriately cite bibliographic sources, properly reference citations and avoid plagiarism.
- have developed the ability to organize large volumes of information and present them in a systematic, clear and coherent manner, emphasizing key points and significant contributions from existing research.
- have developed critical thinking skills by evaluating the quality and reliability of sources, as well as identifying potential weaknesses and limitations in the studies being reviewed.
- be able to draw substantiated conclusions based on the literature review, supported by the data and analyses of the sources.
- be capable of synthesizing and writing a well-structured and coherent academic paper, presenting the literature review with clarity, objectivity and critical thinking, both in written form and in oral presentations.

#### GENERAL SKILLS

*Considering the general competencies that the graduate should have acquired (as outlined in the Diploma Supplement and presented below), which of these skills does the course aim to achieve?*

*Search, analysis and synthesis of data and information,*

*ICT Use*

*Adaptation to new situations*

*Decision making*

*Autonomous work*

*Teamwork*

*Working in an international environment*

*Working in an interdisciplinary environment*

*Production of new research ideas*

*Project design and management*

*Respect for diversity and multiculturalism*

*Respect for the natural environment*

*Demonstration of social, professional and moral responsibility and sensitivity to gender issues*

*Critical thinking and self-reflection*

*Promoting free, creative and inductive reasoning*

Search, analysis and synthesis of data and information, ICT Use

Autonomous work

Teamwork

Respect for diversity and multiculturalism

Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Critical thinking and self-reflection

Project design and management

Working in an interdisciplinary environment

Promoting free, creative and inductive reasoning

### 3. COURSE CONTENT

Diploma thesis is a multifaceted educational process that integrates both theoretical and laboratory/experimental approaches to a topic. While it can be analysed in detail as outlined below, its nature as an original research project means it cannot be strictly divided chronologically.

An **experimental diploma thesis** generally involves the following stages:

- discussion and analysis with the supervisor to finalize the selection of the research topic,
- comprehensive search and review of the relevant literature,
- training in the techniques and research methods to be applied within the scope of the thesis,
- definition of the research approach and development of the methodology to be used,
- experimental and/or pilot investigation of the original topic, along with data collection,
- problem-solving as issues arise, potential revision of the methodology and gathering of new data,
- documentation, analysis and evaluation of the scientific data,
- discussion and formulation of conclusions based on the findings,
- writing of a self-contained scientific essay, followed by presentation, revision and discussion with the committee and further revision based on feedback,
- public presentation, evaluation and grading of the thesis,

A **literature review diploma thesis** generally involves the following stages:

- discussion and analysis with the supervisor to select the topic,
- comprehensive search and review of the relevant literature,
- documentation, analysis and evaluation of scientific data,
- discussion leading to the formulation of conclusions,
- writing of a self-contained scientific essay, followed by presentation, revision and collaborative discussion with the committee, incorporating feedback into the final version,
- public presentation, evaluation and grading.

#### 4. LEARNING & TEACHING METHODS - EVALUATION

<b>TEACHING METHOD</b> <i>Face to face, Distance learning, etc.</i>	The teaching includes face-to-face classes, group work, case studies and/or flipped classroom approaches, combined with lectures delivered through synchronous distance learning methods. In addition to attending lectures, postgraduate students are expected to study the relevant literature and participate in educational activities.																											
	Use of ICT in Teaching and in Communication with students. On the asynchronous e-learning platform: <ul style="list-style-type: none"><li>• course material is made available</li><li>• supporting resources for assignments are provided</li><li>• students submit their assignments</li></ul>																											
<b>USE OF INFORMATION &amp; COMMUNICATIONS TECHNOLOGY (ICT)</b> <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>																												
<b>TEACHING ORGANIZATION</b> <i>The ways and methods of teaching are described in detail.</i> <i>Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research&amp; analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. etc.</i> <i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i>	<table><tr><th>Activity</th><th>Workload/Semester</th></tr><tr><td>Diploma thesis</td><td>900</td></tr><tr><td>Total workload</td><td>900</td></tr></table>		Activity	Workload/Semester	Diploma thesis	900	Total workload	900																				
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<b>STUDENT EVALUATION</b> <i>Description of the evaluation process</i>  <i>Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i>  <i>Please indicate all relevant information about the course assessment and how students are informed</i>	<b>Assessment Language:</b> Greek <b>Assessment Method:</b> Formative																											
	<table><tr><th colspan="2">ASSESSMENT CRITERIA FOR THE DIPLOMA THESIS</th><th>max</th></tr><tr><td>Introduction</td><td></td><td>15</td></tr><tr><td>Topic development into sections and subsections (degree of alignment with the requirements of the assignment)</td><td></td><td>30</td></tr><tr><td>Summary/ Abstract</td><td></td><td>10</td></tr><tr><td>Critical thinking, use and presentation of data, hypotheses and sources (depending on the topic)</td><td></td><td>15</td></tr><tr><td>Proper use of bibliography and citation formatting</td><td></td><td>10</td></tr><tr><td>Presentation, Formatting, Composition and Spelling</td><td></td><td>10</td></tr><tr><td>Oral presentation and answering of questions</td><td></td><td>10</td></tr><tr><td colspan="2">Total</td><td>100</td></tr></table>		ASSESSMENT CRITERIA FOR THE DIPLOMA THESIS		max	Introduction		15	Topic development into sections and subsections (degree of alignment with the requirements of the assignment)		30	Summary/ Abstract		10	Critical thinking, use and presentation of data, hypotheses and sources (depending on the topic)		15	Proper use of bibliography and citation formatting		10	Presentation, Formatting, Composition and Spelling		10	Oral presentation and answering of questions		10	Total	
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#### 5. SUGGESTED BIBLIOGRAPHY

- The literature relevant to the specific scientific field in which the postgraduate student will be involved: original publications and review articles.

## **PART IV**

### **ΥΠΗΡΕΣΙΕΣ & ΔΟΜΕΣ ΣΤΗΡΙΞΗΣ ΓΙΑ ΤΟΥΣ ΦΟΙΤΗΤΕΣ**