

Module Outline

1. GENERAL

SCHOOL	NATURAL SCIENCES AND TECHNOLOGY		
PROGRAMME	STUDIES IN NATURAL SCIENCES		
LEVEL OF STUDIES	Level 6 of the Hellenic and European Qualifications Framework		
MODULE CODE	FYE-41	YEAR	4 th
MODULE TITLE	Evolution of ideas in Natural Sciences		
INDEPENDENT TEACHING ACTIVITIES <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>		HOURS	CREDITS
Weekly workload: 17-18 hours x 32 weeks		560	20 ECTS
MODULE TYPE <i>Compulsory/Elective/ Mandatory Optional</i>	Optional		
MODULE DESCRIPTION <i>general background, special background, specialised, general knowledge, skills development</i>	Scientific area History and Philosophy of Sciences		
PREREQUISITE MODULES	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE MODULE OFFERED TO ERASMUS STUDENTS	No		
MODULE WEBSITE (URL)	The Module has its own space in the digital learning environment of HOU (https://study.eap.gr/login/index.php) with controlled access (using a code) for students and Teaching Staff.		

2. LEARNING OUTCOMES

Learning outcomes

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

LEARNING OUTCOMES

After successful completion of this thematic module, the student will be aware of the general evolution of ideas in science. He should have realized that, while physical phenomena remain the same, the human approach and interpretation of them vary through the centuries.

In particular, the student will approach the history of physics, chemistry, biology, characteristic “adventures” and the degree of acceptance of the proposed interpretations of natural phenomena, by the scientific community and structured society.

The students have to realize that the field of scientific research is open to further research which would lead to new concepts, models, theories, surprises.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in

<i>the Diploma Supplement and appear below), at which of the following does the Module aim?</i>	
<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>Team work</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>Production of new research ideas</i>	

The general skills that the students will acquire are:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Working in an interdisciplinary environment
- Respect for the natural environment
- Criticism and self-criticism

3. SYLLABUS

Course contents

History of Physics and Chemistry (with emphasis in ancient times, the Arabs (10th-12th century), the Scientific Revolution (16th & 17th century modern physics).

History of Biology (perceptions of the phenomena of life in antiquity and the Middle Ages, Renaissance, modern times).

Philosophy of Science (Philosophical currents historical dimension in philosophy of science, modern trends in philosophy of science, Conceptual approach.

Subjects covered

- History of physics and chemistry
- History of biology
- Philosophy of science

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	- Distance teaching and learning with six (6) Group Counseling Meetings (GCMs) of 4-hour duration during the academic semester on weekends. - Personal communication and feedback (advisory role of Adjunct Faculty).														
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<u>During GCMs and teaching the following are used:</u> - Remote meetings tools (webex, Teams), - Presentation software (PowerPoint, educational video - animations etc.), In addition, students use office automation tools, web browsers and e-reader for digital books. <u>Communication with the students is supported by:</u> - The digital platform of HOU (https://study.eap.gr/login/index.php) (course information, educational material posts, announcements, messages, examination results, user groups, discussion forums etc.). - e-mail														
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational</i>	<table border="1"> <thead> <tr> <th>Activity</th><th>Year Workload</th></tr> </thead> <tbody> <tr> <td>6 GCMs (x 4 hours)</td><td>24</td></tr> <tr> <td>6 Written Assignments (x 20 hours)</td><td>120</td></tr> <tr> <td>Individual Study time (12-13 hours x 32 weeks)</td><td>405</td></tr> <tr> <td>Self-evaluation activities</td><td>8</td></tr> <tr> <td>Final examination</td><td>3</td></tr> <tr> <td>Total Workload (hours)</td><td>560</td></tr> </tbody> </table>	Activity	Year Workload	6 GCMs (x 4 hours)	24	6 Written Assignments (x 20 hours)	120	Individual Study time (12-13 hours x 32 weeks)	405	Self-evaluation activities	8	Final examination	3	Total Workload (hours)	560
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<i>visits, project, essay writing, artistic creativity, etc.</i> <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>	
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <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> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Students' evaluation – Grade assessment of a Module: Preparation of written assignments during the academic year. Their average has a role in shaping the final grade of the Module by 30%, if it is possible to advance to the final or repeat exams. Final written exams whose grade participates in shaping the final grade of the Module by 70%. All the criteria are posted, both in each written assignment (in the study), and in the general regulation https://www.eap.gr/el/spoudes-sto-eap/ekpaideusi/kanonismoi/kanonismos-spoudwn In this particular Module, an intermediate optional exam is also conducted. Language of evaluation: Greek

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
Volume A: History of Physics and Chemistry, Hellenic Open University, Patras 2003.
Volume B: History of Biology, Hellenic Open University, Patras 2003.
Volume C: Philosophy of Science, Hellenic Open University, Patras 2003.
Additional supplementary digital material (and multimedia) is available in the study platform (study).
- Related academic journals: Introduction to History and Philosophy of Science , The Structure of Scientific Revolutions, History and Philosophy of Biology Book Series