

Module Outline FYE30

1. GENERAL

SCHOOL	SCHOOL OF SCIENCE AND TECHNOLOGY		
PROGRAMME	Studies in Natural Sciences		
LEVEL OF STUDIES	Level 6 of the Hellenic and European Qualifications Framework		
MODULE CODE	FYE30	YEAR	3d
MODULE TITLE	ORGANIC CHEMISTRY		
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: 14 hours x 32 weeks		448	16 ECTS
MODULE TYPE <i>Compulsory/Elective/ Mandatory Optional</i>	Compulsory (Mandatory)		
MODULE DESCRIPTION <i>general background, special background, specialised, general knowledge, skills development</i>	Scientific area		
PREREQUISITE MODULES	It is recommended that the student attend the course FYE30 before or in parallel with FYE31, because otherwise they will encounter difficulties in the Biochemistry course (FYE31/2)		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE MODULE OFFERED TO ERASMUS STUDENTS	No		
MODULE WEBSITE (URL)	The Module FYE30 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. https://study.eap.gr/course/view.php?id=139		

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

Knowledge:

Upon successful completion of the Module, students are expected to:

- Homologous series – Nomenclature of organic compounds
- Stereochemistry and mechanisms of organic reactions
- Preparation and reactions of organic compounds
- Biomolecules – Properties and reactions
- Spectroscopy of organic compounds
- Heterocyclic compounds – Nomenclature and reactions

Skills:

Upon successful completion of the Module, students are expected to:

- Classify the structures of organic molecules and the basic reactions of Organic Chemistry
- Understands the fundamental principles and rules of Stereochemistry
- Classify the main categories and properties of organic compounds
- Classify the main categories of biomolecules
- Understands the properties of biomolecules and the mechanisms of their basic reactions
- Classify the main spectroscopic techniques
- Classify the main categories of heterocyclic compounds
- Understands the properties of heterocyclic compounds and the chemistry of their basic reactions

Competences:

Upon successful completion of the Module, students are expected to:

- Identifies the structures and properties of basic organic molecules and the fundamental reactions of Organic Chemistry
- Proposes sequences of reactions for the synthesis of simple organic molecules, designing the most efficient sequence of chemical reactions
- Identifies the stereochemistry of organic compounds and biomolecules
- Identifies and proposes the basic mechanisms of organic reactions in organic transformations
- Applies the main spectroscopic techniques in combination to elucidate the structure of simple organic molecules
- Identifies and proposes reaction sequences for the synthesis and transformation of simple classes of heterocyclic compounds

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 Module aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

The general skills that the students will acquire are:

- Search for, analysis and synthesis of data and information
- Decision-making
- Individual/Independent work
- Production of new research ideas
- Criticism and self-criticism
- Development of free, creative and inductive thinking
- Production of free, creative and inductive thinking

3. SYLLABUS**Purpose of Module**

The integration of the fundamental knowledge subjects of Organic Chemistry is the student to become familiar with the structure and properties (physical and chemical) of the members of the most important homologous series in Organic Chemistry, as well as with simple mechanisms of organic reactions; the structure and functionality of organic compounds found in living organisms (biomolecules), which usually contain more than one functional group; and the basic spectroscopic techniques that enable the identification of the structure of organic compounds.

Subjects covered

1. Homologous series
2. Stereochemistry and mechanisms of organic chemical reactions

3. Spectroscopy of organic compounds
4. Biomolecules

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). - Distance teaching and learning with (6) Supportive Group Counseling Meetings (GCMs) of 2-hour duration during the academic semester.														
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.), - Specialized software/databases for the subjects under study (NCBI PubMed, NCBI Blast, EndNote 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 - Telephone communication during designated office hours														
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 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>	<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 SGCMs (x2 hours)</td><td>12</td></tr> <tr> <td>6 Written Assignments (x 12 hours)</td><td>72</td></tr> <tr> <td>Individual Study time (10-11 hours x 32 weeks)</td><td>335</td></tr> <tr> <td>Final examination</td><td>5</td></tr> <tr> <td>Total Workload</td><td>448</td></tr> </tbody> </table>	Activity	Year Workload	6 GCMs (x 4 hours)	24	6 SGCMs (x2 hours)	12	6 Written Assignments (x 12 hours)	72	Individual Study time (10-11 hours x 32 weeks)	335	Final examination	5	Total Workload	448
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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,</i>	Students' evaluation – Grade assessment of a Module: a. Six (6) multiple-choice (Q=quiz) educational activities (Q), which contribute equally to the final grade with a value of 5% each (30% in total if passing grade is achieved in the final semester assignment). b. Two (2) Final Semester Assignments (FA) which contribute equally to the final grade with a value of 35% each. The Final Grade of the module, within scale 1-10 (10 is the excellent), is calculated as follows: Final Grade=(Average of Q x 0.30) + (FA1x0.35) + (FA2x0.35) All the criteria are posted both with each written assignment (on the Study platform) and in the General Regulations:														

clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	https://www.eap.gr/el/spoudes-sto-eap/ekpaideusi/kanonismoi/kanonismos-spoudwn Language of evaluation: Greek
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5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Volume I: Organic Chemistry, Homologous Series, Stereochemistry and Mechanisms of Organic Reactions, M. Strataki, Hellenic Open University, Patras, 2002.

Volume II: Organic Chemistry, Homologous Series, Stereochemistry and Mechanisms of Organic Reactions, D. Papaioannou, Hellenic Open University, Patras, 2001.

Volume III: Organic Chemistry, Spectroscopy of Organic Compounds, I. Gerothanasis, Hellenic Open University, Patras, 2000.

Volume IV: Organic Chemistry, Biomolecules, Structure and Functionality, Nikos Karamanos, Hellenic Open University, Patras, 2000.

Additional supplementary digital (and multimedia) material is available on the Study platform:

<https://apothesis.eap.gr/handle/repo/11570>

1. (Supplementary Educational Material) *Chemistry of Heterocyclic Compounds*, D. Papaioannou, Hellenic Open University, Patras, 2008.
2. Webcasts, recorded lectures, and lecture slides, D. Papaioannou, S. Haroutounian, I. Synevriotis, A. Makedonas, I. Tziakos, Hellenic Open University, Patras, 2005.

- Related academic journals:

«Organic Chemistry» Ed. Marc Loudon and James Parise (Author, (6th Edition). ISBN-10: 1936221349, ISBN-13: 978-1936221349

«Organic Chemistry» Ed. John McMurry, (9th Edition), ISBN 9781305080485