



ΔΙΕΘΝΕΣ
ΠΑΝΕΠΙΣΤΗΜΙΟ
ΤΗΣ ΕΛΛΑΔΟΣ



ΜΟ.ΔΙ.Π.
Μονάδα Διασφάλισης Ποιότητας / Διεθνές Πανεπιστήμιο της Ελλάδος



INTERNATIONAL
HELLENIC
UNIVERSITY

Department of Biomedical Sciences

**Post-Graduate Program:
Innovative Approaches in Clinical
Microbiology and Infectomics**

COURSES OUTLINE

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COURSE OUTLINE (A.1) CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES

1. CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES

| | | | |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEA1 | SEMESTER | 1 |
| COURSE TITLE | CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES | | |
| INSTRUCTOR(S) | SYMEON METALLIDIS & OLGA TSACHOURIDOU symeonam@auth.gr & olgat_med@hotmail.com | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Theory</i> | 1 | | |
| <i>Laboratory</i> | 2 | | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| <p>This module includes laboratory techniques. The student is introduced to the basic concepts of clinical microbiology and its relation to infectious diseases. More specifically, students will study structural and functional genomics and proteomics of microbial infections (infectomics) and thus understand the interactions between microbial pathogens and their hosts during infection by using infectomics expressed in certain environmental conditions. Students will be introduced to concepts related to the pathogenesis and basic mechanisms of transmission of all types of microorganisms (bacteria, viruses, fungi and parasites). Clinical and para-clinical methods of diagnosis, treatment and prevention will also be included in this course. By the end of the course, students will be able to recognize the differences between various infections and special conditions (eg community-acquired infections, travelers and emerging infectious diseases). This module will analyze the laboratory diagnostic techniques required for the identification of clinical syndromes and infections. Students will be able to identify the clinical features with the corresponding laboratory examination. Also, in order to make the correct diagnosis, students will perform basic diagnostic laboratory arrays, based on updated protocols.</p> |

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Production of new research ideas
- Project planning and management
- Production of free, creative and inductive thinking

3. SYLLABUS

- Infectomics
- microorganisms
- pathogenesis
- transmission
- diagnosis
- infections
- prevention
- Basic principles of laboratory arrays – sensitivity and specificity
- Management of biological materials
- Diagnostic tests for detection and identification of bacterial pathogens
- Diagnostic tests for detection and identification of viral infections
- Diagnostic tests for detection and identification of fungal infections
- Diagnostic tests for detection and identification of parasitosis
- Biosafety issues in the laboratory

4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 20 |
| | Laboratory Projects | 90 |
| | Non-Directed Study | 20 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-class platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (A.2) PHARMACOLOGY- DRUG ACTION AGAINST PATHOGENS

1. PHARMACOLOGY- DRUG ACTION AGAINST PATHOGENS

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEA2 | SEMESTER | 1 |
| COURSE TITLE | PHARMACOLOGY- DRUG ACTION AGAINST PATHOGENS | | |
| INSTRUCTOR(S) | GEORGIOS PAPAISIS papazisg@auth.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| The pharmaceutical treatment of infectious diseases is one of the most complicated and well-studied field of Pharmacology. This module focuses on the new guidelines, methods, technological innovations and novel discoveries in the Pharmacology of infectious diseases. Finally, future challenges will be analyzed. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Semantics of Pharmacodynamics and Pharmacokinetics, • New drugs and technologies in the treatment of viral infections, • Prevention and treatment of opportunistic infections and AIDS, • Chemoprophylaxis against nosocomial pathogens and bacterial resistance, • Pharmaceutical treatment of surgical infections, • The role of proteomics in the treatment of infectious agents, • Therapeutic strategies for COVID-19 and future pandemics |
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4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (A.3) COMMUNITY ACQUIRED INFECTIONS AND PUBLIC HEALTH

1. COMMUNITY ACQUIRED INFECTIONS AND PUBLIC HEALTH

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEA3 | SEMESTER | 1 |
| COURSE TITLE | COMMUNITY ACQUIRED INFECTIONS AND PUBLIC HEALTH | | |
| INSTRUCTOR | DIMITRIOS CHATZIDIMITRIOU dihi@auth.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | | WEEKLY TEACHING HOURS | CREDITS |
| <i>Credits are awarded for the whole of the course</i> | | 3 | 6 |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| The sections of this module refer to infections acquired outside the hospital area. The effects of these infections on public health are undeniable. At the end of the module, students will be able to recognize the most important community acquired infections and describe their clinical features, diagnosis and treatment. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Community infections: semantics and the role of the primary health system, • The viral infections of the community in adults, • Seasonal viral infections in children, • The risk of bacterial infection in the community, • The most frequent parasitosis in the community, • The spread of fungi in the community, • The spread of nosocomial infections in the community: the paradigm of MRSA |
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4. TEACHING and LEARNING METHODS - EVALUATION

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|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (A.4) INFECTION PREVENTION AND CONTROL

1. INFECTION PREVENTION AND CONTROL

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEA4 | SEMESTER | 1 |
| COURSE TITLE | INFECTION PREVENTION AND CONTROL | | |
| INSTRUCTOR | GKIKAS MAGIORKINIS gmagi@med.uoa.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | | 3 | 6 |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| The main objective of this module is for students to understand the importance of prevention, in terms of infectious diseases. Guidelines for pathogen prevention in both primary and secondary healthcare will be discussed. Students are expected to acquire the appropriate skills in order to promote the prevention in the community. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Personal Hygiene: guidelines and learning tools, • Hygiene of health professionals and safe medical practices, • Prevention and containment of multi-resistant microbes in hospitals and healthcare facilities, • Prevention and control of sepsis in Intense Care Units, • Prevention of Surgical Site Infections, • The importance of vaccines in prevention |
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4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (A.5) BIOINFORMATICS AND STUDY DESIGN IN INFECTIOUS DISEASES– HOW TO WRITE A SCIENTIFIC PAPER

1. BIOINFORMATICS AND STUDY DESIGN IN INFECTIOUS DISEASES– HOW TO WRITE A SCIENTIFIC PAPER

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEAS | SEMESTER | 1 |
| COURSE TITLE | BIOINFORMATICS AND STUDY DESIGN IN INFECTIOUS DISEASES – HOW TO WRITE A SCIENTIFIC PAPER | | |
| INSTRUCTOR(S) | ANTIGONI MALOUI & URANIA GIANNAKOU andigoni@auth.gr & ran@ihu.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SKILLS DEVELOPMENT | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. ΜΑΘΗΣΙΑΚΑ ΑΠΟΤΕΛΕΣΜΑΤΑ

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| Learning outcomes |
| <p>This is the core compulsory module of all postgraduate study programs dealing with research education. The module teaches the basic principles of research methodology, the basic principles of biostatistics as well as guidelines for writing a research paper. More specifically, in this module, students will be able to understand their assignments, choose a research paper topic/project, conduct preliminary research, develop a thesis statement, create a research paper outline, write a first draft of the research paper, write the introduction, write a compelling body of text, write the conclusion, present their results, understand the steps of a revision process and present their work on lecture slides. The introduction to modern and valid bioinformatics platforms is also one of the goals of this module. Students will acquire the ability to use these tools, search for valid sources and analyze the data. At the end of the module students will be able to design an experimental study in the field of infectious diseases.</p> |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. ΠΕΡΙΕΧΟΜΕΝΟ ΜΑΘΗΜΑΤΟΣ

- Basic rules of bioinformatics and study design
- Plagiarism and other ethical issues
- Types of research and their study design
- Valid databases in the field of infectious diseases
- useful online tools of data analysis and applications in the study and research in the diagnosis of infectious diseases
- research methodology
- biostatistics
- develop a thesis statement
- create a research paper outline
- write a first draft
- introduction
- conclusion
- presentation of the results
- revision process

4. TEACHING and LEARNING METHODS - EVALUATION

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|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle, Videos, e-class, webmail, Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 40 |
| | Projects | 40 |
| | Non-Directed Study | 40 |
| | Exams | 30 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (B.1) INVESTIGATION AND DIAGNOSIS OF IMPORTED INFECTION- TROPICAL DISEASES

1. INVESTIGATION AND DIAGNOSIS OF IMPORTED INFECTION- TROPICAL DISEASES

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEB1 | SEMESTER | 2 |
| COURSE TITLE | INVESTIGATION AND DIAGNOSIS OF IMPORTED INFECTION- TROPICAL DISEASES | | |
| INSTRUCTOR(S) | ANNA PAPA-KONIDARI & STELLA MITKA annap@auth.gr & mitka@ihu.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| In this module, students will be able to fully understand a variety of imported infections, their bio-pathophysiological mechanisms, the possibilities of early diagnosis and prevention, advanced laboratory preparedness and response measures. West Nile Virus, severe acute respiratory syndrome, coronavirus, Middle East Respiratory syndrome coronavirus, Ebola, etc., have all in common their capacity of traveling across the globe and joining epidemics or/and pandemics like HIV, influenza and SARS-CoV-2. These infections pose a threat regardless the geographic origins. A significant share of these infections holds the ones with tropical origins. During the last years, the scientific community witnessed the significance of early diagnosis and prevention in making the difference among epidemics and pandemics. After successful attendance to this module, students will be familiar with modern and efficient diagnostic tools and able to apply this novel knowledge and methodology. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

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|--------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • West Nile Virus severe, • acute respiratory syndrome, |
|--------------------------------------------------------------------------------------------------------------------|

- coronavirus,
- Middle East Respiratory syndrome coronavirus,
- Ebola,
- HIV,
- influenza,
- SARS-CoV-2,
- arboviruses,
- Malaria,
- dengue virus,
- Zika virus,
- chikungunya virus,
- Crimean–Congo hemorrhagic fever,
- Tuberculosis,
- Enteric fever,
- Leptospirosis,
- Rickettsial diseases,
- advanced laboratory procedures

4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (B.2) EMERGING INFECTIOUS DISEASES

1. EMERGING INFECTIOUS DISEASES

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEB2 | SEMESTER | 2 |
| COURSE TITLE | EMERGING INFECTIOUS DISEASES | | |
| INSTRUCTOR(S) | GEORGIA GIOULA ggioula@auth.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| Based on WHO, emerging infectious diseases (EIDs) are serious public health threats. In this module, students will understand the full spectrum of the EIDs definitions. (as an infectious disease that either has appeared and affected a population for the first time, or has existed previously but is rapidly spreading, either in terms of the number of people getting infected, or to new geographical areas). The origins of these diseases will be thoroughly analyzed. Also, the immunity of humans against these infections as well as coping strategies of prevention and diagnosis for these specific pathogens will be studied. Finally, students will be able to fully comprehend the impact of EIDs, on health, society and the economy, and the difficulty of prediction. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Zoonotic diseases, • Vector-borne diseases, • Candida auris, • Elizabethkingia anopheles, • Avian influenza, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- MCR Genes,
- Nipah virus,
- Crimean-Congo haemorrhagic fever and avian influenza A(H5N1),
- public health,
- society,
- economy

4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (B.3) RESISTANCE MECHANISMS IN ANTIBACTERIAL

1. RESISTANCE MECHANISMS IN ANTIBACTERIAL

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEB3 | SEMESTER | 1 |
| COURSE TITLE | RESISTANCE MECHANISMS IN ANTIBACTERIAL | | |
| INSTRUCTOR(S) | MARIA CHATZIDIMITRIOU chdimitr@ihu.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Theory</i> | 1 | | |
| <i>Laboratory</i> | 2 | | |
| <i>Credits are awarded for the whole of the course</i> | 3 | 6 | |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| This is a laboratory module. Bacterial resistance to antibiotics is a global plague with extreme rates of mortality and morbidity. The majority of pathogens have developed tolerance mechanisms to at least one antimicrobial agent. In this module, the four main mechanisms of microbial resistance will be discussed: limiting uptake of an antibiotic, modification of an antibiotic target, inactivation of an antibiotic, and active efflux of an antibiotic. Students will be able to recognize the resistance mechanisms and understand the necessity for conservative use of antibiotics. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Types of antibiotics and their evolution over the years, • Mechanisms and pathways of microbial resistance to antibiotics, • The evolution of resistance to β-lactams, • The appearance of superbugs and the treatment of multidrug-resistant bacteria, • New antibiotics, |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- Preventing the spread of microbial resistance

4. TEACHING and LEARNING METHODS - EVALUATION

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|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | Activity | Semester workload (hrs) |
| | Lectures | 20 |
| | Laboratory Projects | 90 |
| | Non-Directed Study | 20 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks
- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (B.4) MOLECULAR DIAGNOSTICS AND INFECTOMICS

1. MOLECULAR DIAGNOSTICS AND INFECTOMICS

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|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEB4 | SEMESTER | 2 |
| COURSE TITLE | MOLECULAR DIAGNOSTICS AND INFECTOMICS | | |
| INSTRUCTOR(S) | MARIA CHATZIDIMITRIOU & FANI CHATZOPOULOU chdimitr@ihu.gr & fanichatzop@gmail.com | | |
| INDEPENDENT TEACHING ACTIVITIES | | WEEKLY TEACHING HOURS | CREDITS |
| <i>Credits are awarded for the whole of the course</i> | | 3 | 6 |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| In this module, students will elaborate to the principles of the molecular techniques used for the detection of the pathogens. PCR, microarrays and sequencing techniques, CRISPR-Cas technology and mass spectrometry are some of the molecular diagnostic tools that will be analyzed. The students will be able to: recognize the methods and understand the advances of the molecular diagnostics through the years, apply several techniques, evaluate the advantages and the disadvantages of each method, and describe the protocols of the basic molecular techniques used in the laboratory routine. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • The advances of molecular diagnostic methods and up-to-date technology, • The Polymerase Chain Reaction (PCR): past and present techniques, • Metagenomics: the analysis procedures and the creation of databases aimed on clinical application, • The clinical diagnosis of infectious diseases based on sequencing techniques, |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- The CRISP-cas technology in the diagnosis of bacterial infections,
- Mass spectrometry and its future applications,
- Molecular techniques in the diagnosis of COVID-19

4. TEACHING and LEARNING METHODS - EVALUATION

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|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (B.5) INFECTIONS IN HEMATOLOGIC PATIENTS - CENTRAL NERVOUS SYSTEM INFECTIONS AND ADVANCES IN NEUROSCIENCES

1. INFECTIONS IN HEMATOLOGIC PATIENTS - CENTRAL NERVOUS SYSTEM INFECTIONS AND ADVANCES IN NEUROSCIENCES

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|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEB5 | SEMESTER | 2 |
| COURSE TITLE | INFECTIONS IN HEMATOLOGIC PATIENTS - CENTRAL NERVOUS SYSTEM INFECTIONS AND ADVANCES IN NEUROSCIENCES | | |
| INSTRUCTOR(S) | ILIAS PESSACH iliaspessach1980@gmail.com | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| <i>Credits are awarded for the whole of the course</i> | | 3 | 6 |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| <p>Infections have been a major cause of morbidity and mortality in hematology patients and a major obstacle to the success of allogeneic stem cell transplantation. Students will assess on this specific group of patients, the pathogens responsible for the majority of the infections and the novel diagnosis methods at their disposal. Students will be able to manage the early diagnosis in order for the rapid introduction of the appropriate antimicrobial drugs. Emphasis will be given on the infections in neutropenic patients and primary immune deficiencies.</p> <p>Infections of the nervous system are potential life-threatening and are caused by pathogens such as bacteria, mycobacteria, viruses, parasites and fungi. These infections are responsible for the significant rates of morbidity and mortality in immunocompetent and immunocompromised individuals. In this module, students will be educated on the novel tools that neurosciences possess and will understand the significance of the comparative apply of molecular, culture, and other laboratory results (histologic findings, etc.) for an accurate diagnosis. The current microbiological diagnostic methods based on culture or antigen detection have been developed to rapid syndromic molecular arrays. Students will assess on the advantages of using a specific panel based in multiplex-PCR tools that include bacteria, viruses and fungi, covering the most prevalent microorganisms.</p> |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas |

- Project planning and management
- Production of free, creative and inductive thinking

3. SYLLABUS

- primary immune deficiencies,
- clinical examination in hematologic patients,
- Blood cultures,
- Other cultures (sputum, urine, skin, and stool samples),
- PCR,
- Scans,
- BALs,
- Neutropenic patients,
- Bone Marrow Examination,
- Anemia,
- Neuroimaging and CSF fluid analysis,
- Aspergillus,
- Nocardia,
- Coxsackie A & B,
- HSV, types 1 and 2,
- CMV, EBV, VZV,
- mumps virus,
- HIV,
- echovirus,
- HSV,
- JC,
- CMV,
- HHV-6,
- T. gondii, Listeria, Cryptococcus neoformans, Coccidioides immitis, Histoplasma capsulatum,
- Diagnostic multiplex-PCR tools

4. TEACHING and LEARNING METHODS - EVALUATION

| | | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail • Zoom | |
| TEACHING METHODS | <i>Activity</i> | <i>Semester workload (hrs)</i> |
| | Lectures | 50 |
| | Non-Directed Study | 40 |
| | Projects | 40 |
| | Exams | 20 |
| | Course total | 150 |

| | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Exams (50%), Multiple choice questions (on lab material and theory). Projects (50%) (group project, in-class presentation). The evaluation procedure is announced to the students during the first lecture and is also accessible at the e-learn platform throughout the entire semester. https://exams-phym.the.ihu.gr/ |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS

COURSE OUTLINE (C.1)

1. PROJECT-THESIS

| | | | |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------|
| SCHOOL | HEALTH SCIENCES | | |
| ACADEMIC UNIT | BIOMEDICAL SCIENCES | | |
| LEVEL OF STUDIES | POSTGRADUATE – LEVEL 7 | | |
| COURSE CODE | INFEC1 | SEMESTER | 3 |
| COURSE TITLE | PROJECT-THESIS | | |
| INSTRUCTOR(S) | MARIA CHATZIDIMITRIOU chdimitr@ihu.gr | | |
| INDEPENDENT TEACHING ACTIVITIES | | WEEKLY TEACHING HOURS | CREDITS |
| <i>Credits are awarded for the whole of the course</i> | | 10 | 30 |
| COURSE TYPE | SPECIAL BACKGROUND | | |
| PREREQUISITE COURSES | - | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | ENGLISH | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | NO | | |
| COURSE WEBSITE (URL) | https://exams-phym.the.ihu.gr/course/index.php?categoryid=3 (under construction) | | |

2. LEARNING OUTCOMES

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| Learning outcomes |
| After completing the course, participants will be able to search the international literature, practice various techniques and methodologies, carry out experiments or review the studies of various researchers, to present and record the results of their work in a structured form as a postgraduate diploma thesis. |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Production of new research ideas • Project planning and management • Production of free, creative and inductive thinking |

3. SYLLABUS

| |
|------------------------------------------------------------|
| <ul style="list-style-type: none"> • Thesis |
|------------------------------------------------------------|

4. TEACHING and LEARNING METHODS - EVALUATION

| | |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DELIVERY | Hybrid: Face to face and synchronous distance learning |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | Use of ICT in Teaching and Communication with students <ul style="list-style-type: none"> • The course material (slides, scientific articles, exercises, etc.) is posted on the course page at the e-learn platform Moodle • Videos • e-class, webmail |

| | | |
|---------------------------------------|--------------------------------------------------------------------------|--------------------------------|
| | • Zoom | |
| TEACHING METHODS | Activity | Semester workload (hrs) |
| | Final Thesis | 450 |
| | Literature analysis and review process | 150 |
| | Preparation and Presentation | 150 |
| | Course total | 750 |
| STUDENT PERFORMANCE EVALUATION | Language of Evaluation: English Written Thesis and Oral presentation. | |

5. ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

- Suggested Textbooks

- Additional Bibliography: UNDER CONSTRUCTION FROM THE INSTRUCTORS