



ΔΙΕΘΝΕΣ  
ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΤΗΣ ΕΛΛΑΔΟΣ



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



INTERNATIONAL  
HELLENIC  
UNIVERSITY

**Department of Biomedical Sciences**

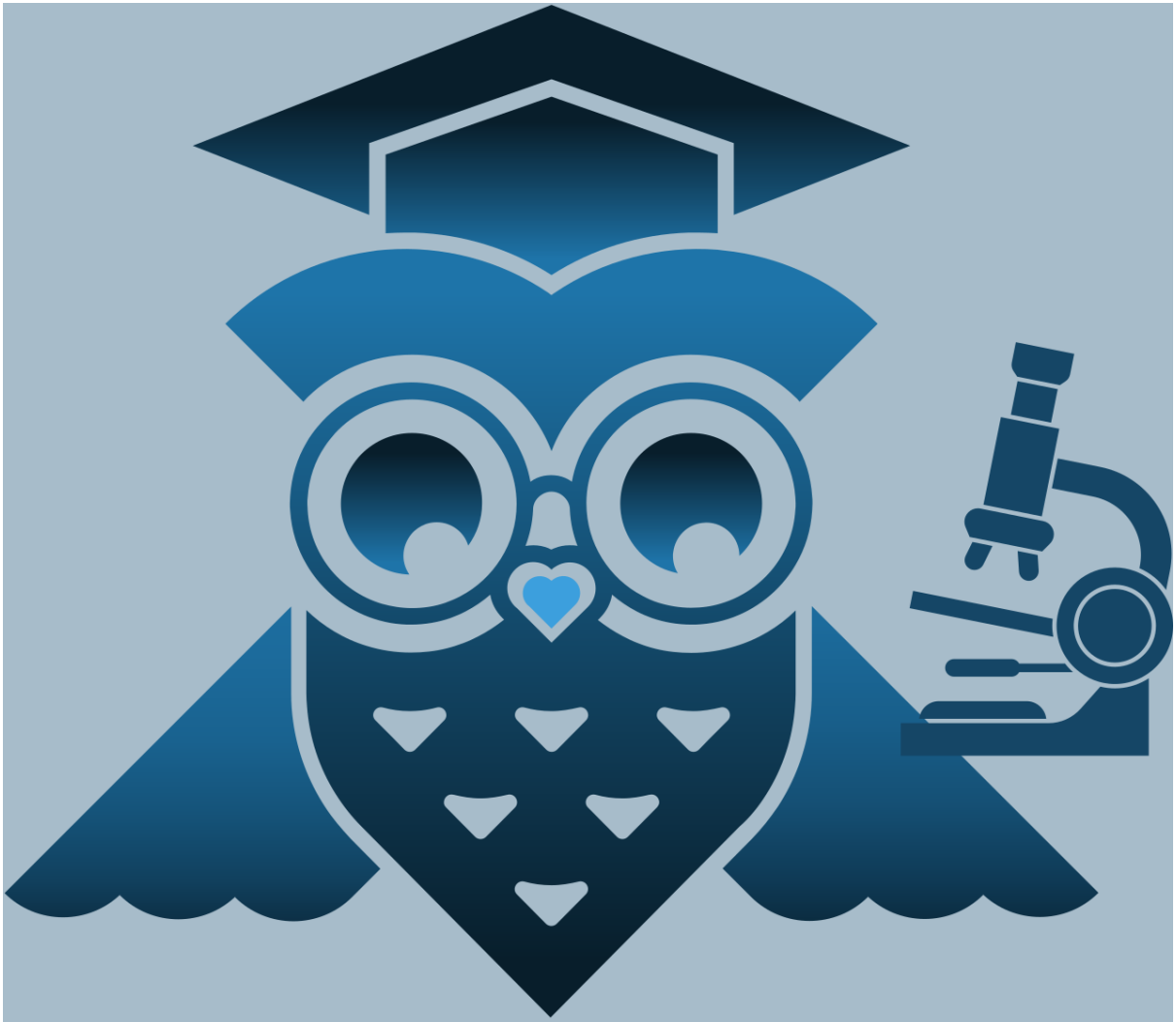
**Post-Graduate Program:  
Innovative Approaches in Clinical  
Microbiology and Infectomics**

Study Guide

**INNOVATIVE APPROACHES IN  
CLINICAL MICROBIOLOGY AND  
INFECTOMICS**

MAY 2024





**M S C I A C M I**

Dear students,

Welcome to **MSc “Innovative approaches in Clinical Microbiology and Informatics”** conducted by the Department of Biomedical Sciences of the School of Health Sciences of the International Hellenic University.

Global phenotypic changes in microbes and their host (Infectomics) are expressed under certain environmental conditions through specific microbe-host interactions during infection. These changes are encoded by the genomes of microbial pathogens and their hosts. Approaches at the genome level to determine the genotype and phenotype will lead to a global "mapping" of microbial pathogenesis, aiming to effectively and rapidly diagnose infectious diseases and develop new strategies for controlling infections. This MSc aims to provide students with modern and specialized expertise in the spectrum of biomedical developments in the service of infectious disease diagnosis during three semesters courses. Through in-depth theoretical and practical laboratory training, students will receive comprehensive training in the range of biomedical and molecular sciences applications, and their professional training will be linked to the job market.

The program aims to train students in the modern molecular diagnosis of infectious diseases, with a focus on bioinformatics application techniques. It will cover important topics such as pharmacology, drug action against pathogens, community infections, public health issues, prevention, and surveillance. The curriculum will include both theoretical and practical training in laboratory diagnostic methods for clinical syndromes and infections, with a special emphasis on traveler infections and tropical diseases. In addition, students will specialize in modern neuroscientific issues related to infections of the central nervous system and infections of hematologic patients.

To obtain the MSc degree, a total of 90 Credit Units (ECTS) are required. To be eligible for the degree, students must attend all courses during the first and second semesters, and successfully pass all exams. The first semester, A', comprises of 30 ECTS, and the second semester, B', also consists of 30 ECTS. During the third semester, C', students must complete a dissertation worth 30 ECTS. The language of instruction for the program is English. Teaching hours can be allocated to remote synchronous teaching and a mixed/hybrid system, with face-to-face sessions for laboratory courses and distance teaching for theoretical courses.

The object of the MSc is postgraduate teaching, research, and training and specialization of new scientific potential in Biomedical and Molecular Sciences and their applications in the diagnosis of infectious diseases with an emphasis on the latest developments and the acquisition of knowledge and skills in both applied laboratory and clinical research issues.

**The Director of MSc “Innovative approaches in Clinical Microbiology and Infectomics”**

**Maria Chatzidimitriou, MD, PhD**

**Medical Biopathologist**

**Professor of Medical Biopathology, Microbiology and Immunology**



## INTERNATIONAL HELLENIC UNIVERSITY

### 1.1 General Information

The International Hellenic University of Greece (IHU), based in Thessaloniki, was established by Article 1 of Law 3391/2005 (Official Gazette 240) and is organized and operates as a Higher Education Institution (HEI) of university sector according to paragraph 1 and case a of paragraph 2 of Article 1 of Law 4485/2017 (Official Gazette 114). With Law 4610/2019 (Official Gazette 70/A/7-5-2019), seven (7) Schools were established within it, each with its respective Departments.

Furthermore, within the IHU operates the University Center for International Study Programs, based in Thessaloniki, as an academic unit of the institution. The following Departments are established in the University Center for International Study Programs:

- a. Department of Humanities, Social and Economic Sciences, which is part of the School of Humanities, Social and Economic Sciences.
- b. Department of Science and Technology, which is part of the School of Science and Technology.

The above Departments are based in different cities of Northern Greece. Most are primarily concentrated in four university towns: Themi (where the University headquarters is located), Sindos, Serres, and Kavala.

### 1.2 Structure and Academic Organization

According to the current legislation, each University is divided into Schools, which cover a set of related scientific fields, ensuring necessary coordination to ensure the quality of education provided. A School is divided into individual Departments, which also serve as the primary academic units. These units cover the cognitive subject matter of a specific scientific field and confer the corresponding degree/diploma.

The administration of each School is exercised by the Deanery and its Dean. The Deanery of the School consists of:

- The Dean of the School,
- The Chairs of the Departments, and
- Representatives of the members of the teaching and research staff and students.

The administration of each Department is carried out by:

- The Assembly of the Department,
- The Administrative Council, and
- The Chair of the Department.

The Assembly of the Department consists of the members of the Department's Teaching Staff and representatives of the technical staff, undergraduate, and postgraduate students.

The bodies of the (institutionalized) directions (Sections) of the Departments (where they exist) are the Assembly and the Director of the Section. The Section Assembly consists of the members of the Teaching Staff of the respective direction and representatives of the students.

### 1.3 The “Alexandria” University Campus of Thessaloniki

The “Alexandria” University Campus of Thessaloniki is located in the municipality of Delta (in the Sindos area to the west of the Municipality of Thessaloniki) and hosts a total of 14 out of the 32 Departments of Undergraduate Studies of the International University of Greece (IUG), which are distributed across 7 Schools and 7 University Campuses, spanning 6 cities in Northern Greece (Thessaloniki, Serres, Kavala, Drama, Kilkis, Katerini). [Source: <https://www.ihu.gr/about>]

The Alexandria University Campus ([https://youtu.be/nYBjex60\\_aY](https://youtu.be/nYBjex60_aY)), along with the Thermi University Campus it hosts, the University Administration, and the University Center for International Study Programs, constitute the two University Campuses of the Thessaloniki Prefecture.

The Department of Biomedical Sciences belongs to the School of Health Sciences along with the Departments of Nutrition and Dietetics, Midwifery, Nursing, and Physiotherapy, which are also located in the [same] area.

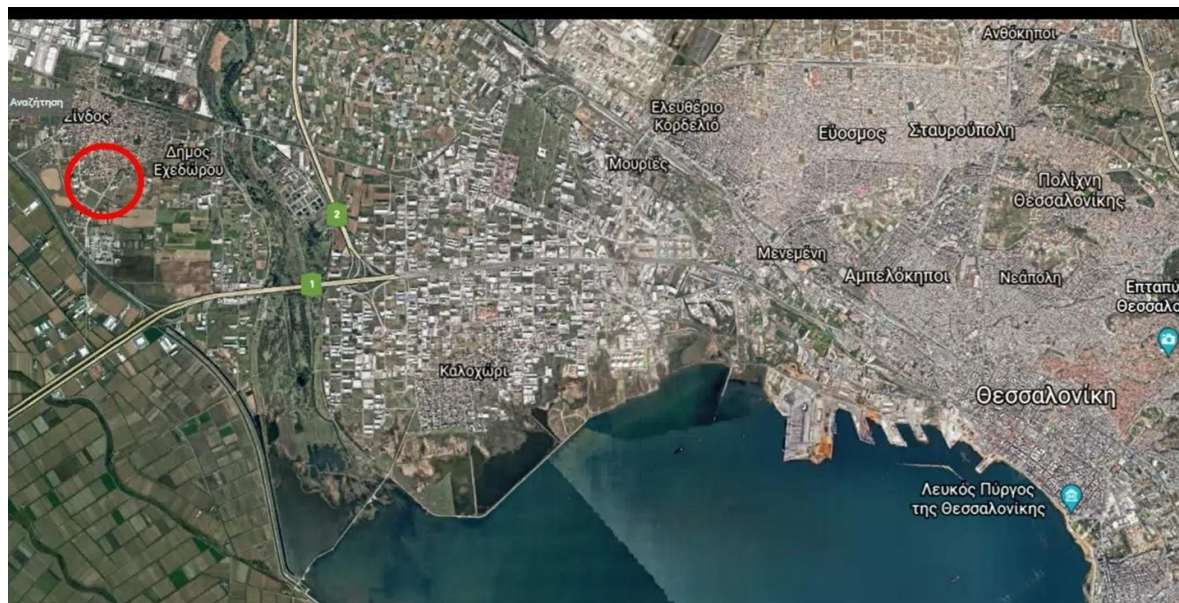
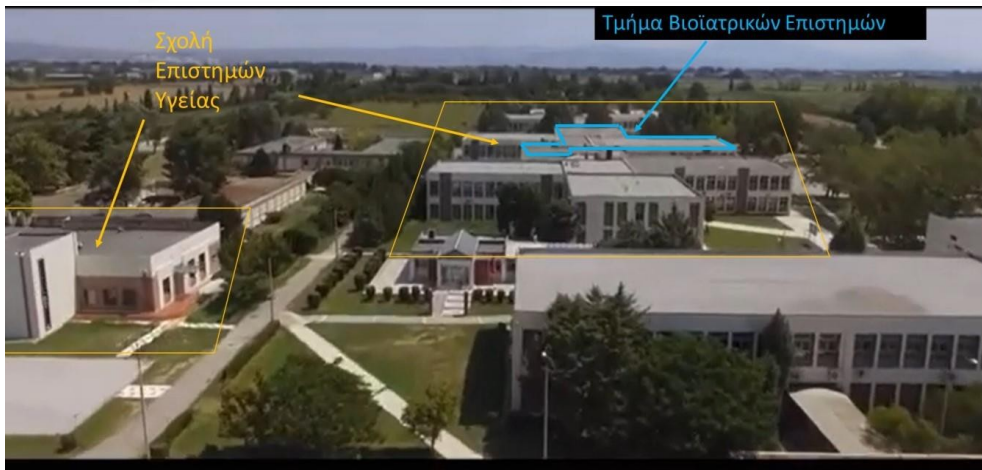
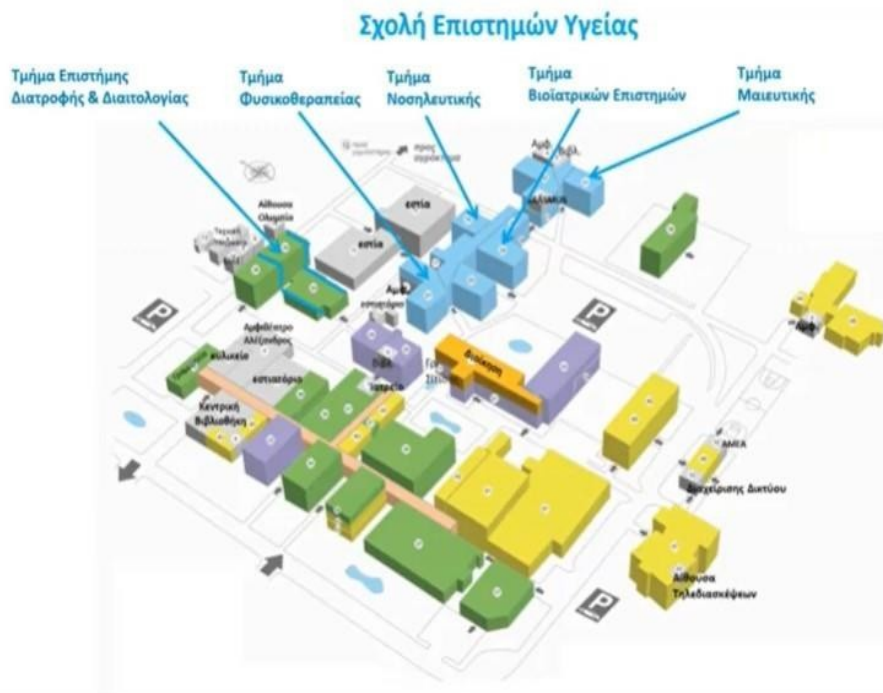


Figure 1. The city of Thessaloniki as seen from Google Earth. The location of the International University Campus is marked with a red circle.



Figures 2 and 3. Departments of the School of Health Sciences



## 2. The CITY "where the Department is based" - Thessaloniki

### 2.1 Geographical and Demographic Information

The regional unit of Thessaloniki is located in central Macedonia and is bordered by the Thermaic Gulf to the west and the Strymonic Gulf to the east. It has a population of approximately 1,100,000 residents and is divided into 14 municipalities. Among these, the municipality of Thessaloniki is the main municipality of the homonymous city, which serves as the capital of the regional unit. The municipality of Thessaloniki, where the administrative headquarters of the International Hellenic University (IHU) is located, is situated to the south-east of the municipality of Thessaloniki, while the municipality of Delta, with its seat in Sindos, which hosts the Alexandria Innovation Zone of IHU, is located to the west.

### 2.2 History

The area where the City now stands saw the development of many settlements, as early as the Neolithic and Bronze Ages. Thessaloniki was founded by Cassander, a general of Philip II, in 316 BC, and he named the City after his wife and sister of Alexander the Great, Thessalonike. The new city was established on the site of ancient Therma, through the merger of neighboring settlements, and experienced significant growth, initially due to its strategic position for the Macedonian state.

From 168 BC, the City fell under Roman rule. Most of the Roman monuments preserved in the City were built during the 2nd and 3rd centuries AD, such as the Roman Agora (2nd and early 3rd century), on Aristotelous Square, between Olympou and Filippou streets, and the Rotunda, Hippodrome, Triumphal Arch or Galerius Gallery (Kamara).

The City's tumultuous history includes uprisings, such as those against Emperor Theodosius I the Great, raids by Slavs and Bulgarians in the 9th and 10th centuries, occupation and extensive destruction by the Normans, and later occupation by the Franks. Towards the end of Ottoman rule, the City and the wider area were contested by Greeks and Bulgarians who clashed within the framework of the Macedonian Struggle, until October 26, 1912, when it was liberated by the Greek army, a protocol for the surrender of the City was signed, and the City's modern history began.

After its liberation, refugees began to flock to the City from various regions and from the Hellenism of the East, reaching its peak in 1922 when, with the signing of the Treaty of Lausanne and the decision for population exchange, thousands of refugees from Asia Minor flocked in.

In 1941, the German occupation occurred. Thousands of Jews from Thessaloniki were transported by trains to Nazi camps, and the city's Jewish community was almost annihilated, while many Jews and Christians were killed in the city itself.

### 2.3 Useful Transportation Information

Thessaloniki map:

<https://www.google.com/maps/place/Thessaloniki/@40.6211925,22.9511008,13z/data=!3m1!4b1!4>

[m6!3m5!1s0x14a838fd5a](https://m6!3m5!1s0x14a838fd5a)

[9e1559:0x1e6cde1ac7591bd9!8m2!3d40.6267418!4d22.9594983!16s%2Fg%2F119vlz9\\_|](https://9e1559:0x1e6cde1ac7591bd9!8m2!3d40.6267418!4d22.9594983!16s%2Fg%2F119vlz9_|)

Map of landmarks <https://thessaloniki.gr/wp-content/uploads/2017/02/Thessaloniki-Monuments-Map-GR-Web.pdf>

Transportation:

[https://moovitapp.com/index/el/%CE%B4%CE%B7%CE%BC%CF%8C%CF%83%CE%B9%CE%B5%CF%82\\_%CF%83%CF%85%CE%](https://moovitapp.com/index/el/%CE%B4%CE%B7%CE%BC%CF%8C%CF%83%CE%B9%CE%B5%CF%82_%CF%83%CF%85%CE%)

[B3%CE%BA%CE%BF%CE%B9%CE%BD%CF%89%CE%BD%CE%AF%CE%B5%CF%82-lines-Thessaloniki\\_%CE%98%CE%B5%CF%83%CF%83%CE%B1%CE%BB%CE%BF%CE%BD%CE%B9%CE%BA%CE%B7-2860-852864](https://B3%CE%BA%CE%BF%CE%B9%CE%BD%CF%89%CE%BD%CE%AF%CE%B5%CF%82-lines-Thessaloniki_%CE%98%CE%B5%CF%83%CF%83%CE%B1%CE%BB%CE%BF%CE%BD%CE%B9%CE%BA%CE%B7-2860-852864)

Airport:

<https://www.skg-airport.gr/el/flight-list>

### 3. THE DEPARTMENT OF BIOMEDICAL SCIENCES

The Department of Biomedical Sciences of the School of Health Sciences at the International University of Greece was established in May 2019 by Law No. 4610 (Government Gazette 90/A/07-05-2019) titled "University and Technological Education Institutions synergies, access to tertiary education, experimental schools, General State Archives, and other provisions."

This department evolved from the former Department of Medical Laboratories of the Alexander Technological Educational Institute of Thessaloniki, which belonged to the technological sector of Higher Education. The alignment of the former Department of Medical Laboratories with the Biomedical Sciences Departments of European Universities and the recommendation for renaming had been suggested by external evaluators as early as 2012.

The renaming was deemed necessary to better align the department's name with the Biomedical Sciences departments of European universities, whose graduates possess the corresponding knowledge, skills, and professional rehabilitation opportunities as the former Department of Medical Laboratories (Professional Rights Gazette 118/14-6-1996 / A, Professional Practice License Gazette 34/A/20-3-2017 – Biomedical Scientist job profile, <https://www.prospects.ac.uk/job-profiles/biomedical-scientist>).

The scientific field of the Department of Biomedical Sciences falls under field 09 – Health and welfare according to the international categorization of UNESCO's educational scientific fields (ISCED 2013). The mission of the Department of Biomedical Sciences of IHU is to develop education and research in Biomedical Sciences, create collaborations with social bodies in the field of Biomedical Sciences, and disseminate knowledge and expertise, providing all levels of education (levels 6, 7, and 8 according to the Bologna Process). For this reason:

- A. There is an Undergraduate Program in Biomedical Sciences.
- B. There is an English-language Master's program titled: "Innovative Approaches in Clinical Microbiology and Infectomics."
- C. In collaboration with the Medical Department of the Democritus University of Thrace, there is a "Postgraduate Program in Biomedical and Molecular Sciences in Diagnosis and Treatment of Diseases."
- D. In collaboration with the Medical Department of Aristotle University of Thessaloniki, the Department of Biomedical Sciences participates in two Master's Programs titled:
  - "Vaccines and Infectious Diseases"
  - "Applied Gerontology and Geriatrics"

E. There is a Doctoral Program.

F. Research is conducted in Biomedical Sciences on subjects corresponding to the particular research interests of the faculty members in scientifically relevant fields.

Undergraduate students of the Department also participate in research, alongside Master's and doctoral candidates, as part of their training in research thinking and practice. Furthermore, the Department seeks to conduct research in collaboration and with the assistance of social entities.



Figure 2 . View of the building of the Department of Biomedical Sciences

## 4. POST-GRADUATE PROGRAM «INNOVATIVE APPROACHES IN CLINICAL MICROBIOLOGY AND INFECTOMICS»

### 4.1 Purpose of the Post-Graduate Program

The postgraduate studies aim to promote knowledge, develop research, and satisfy the educational, research, social, cultural, and developmental needs of the country, in training high-level scientists capable of contributing to theoretical and applied areas of specific knowledge branches, special thematic units, or individual branches of the cognitive subjects of the first cycle of studies of the Department of Biomedical Sciences of the School of Health Sciences of the IHU, as well as in the production and dissemination of knowledge, technology, methodologies, tools, and research results in the scientific field in which the department operates.

Global phenotypic changes in microbes and their host (Infectomics) are expressed under certain environmental conditions through specific microbe-host interactions during infection. These changes are encoded by the genomes of microbial pathogens and their hosts. Approaches at the genome level to determine the genotype and phenotype will lead to a global "mapping" of microbial pathogenesis, with the aim of effectively and rapidly diagnosing infectious diseases and developing new strategies for controlling infections.

The object of the MSc is postgraduate teaching, research, and training and specialization of new scientific potential in Biomedical and Molecular Sciences and their applications in the diagnosis of infectious diseases with an emphasis on the latest developments and the acquisition of knowledge and skills in both applied laboratory and clinical research issues. The aim of the MSc is to provide students with modern and specialized knowledge in the spectrum of biomedical developments in the service of infectious disease diagnosis. Through in-depth theoretical and practical laboratory training, students will receive comprehensive training in the range of applications of biomedical and molecular sciences, and their professional training will be linked to the job market.

Specifically, students will be trained in modern molecular diagnosis of infectious diseases. Emphasis will be placed on bioinformatics application techniques in the diagnosis of infectious diseases. Students will acquire knowledge in pharmacology and the action of drugs against pathogens. Community infections, public health issues, prevention, and surveillance will be thoroughly studied. Students will be trained both theoretically and practically in the use of laboratory diagnostic methods for clinical syndromes and infections. Emphasis will also be placed on studying and diagnosing traveler infections and tropical diseases. Furthermore, students will specialize in modern neuroscientific issues from the perspective of infections of the central nervous system, as well as infections of hematologic patients.

The implementation of the program includes two cycles of courses and training with homogeneous and equitable distribution of their educational content. Finally, the acquisition

of critical and research skills is of paramount importance, with the ultimate goal of successfully completing a high-level doctoral dissertation.

#### 4.2 Postgraduate Title

The MSc program awards a Master's Degree (M.Sc.) titled "Innovative Approaches in Clinical Microbiology and Infectomics" (GR: *Καινοτόμες προσεγγίσεις στην Κλινική Μικροβιολογία και Λοιμωξιολογία*), conferred by the Department of Biomedical Sciences of the International University of Greece.

#### 4.3 Teaching Language

The language of instruction is exclusively English. Classes will be delivered in English, study materials will also be in English, and performance assessments of the students will be conducted in English. The language for the completion of the thesis is English, with a comprehensive summary in Greek, German, or French. In any case, a summary of the thesis will be included in English.

#### 4.3 Website

UNDER CONSTRUCTION

## 5. INFORMATION ABOUT THE ORGANIZATION OF STUDIES

### 5.1 Duration and terms of enrollment

The minimum duration of enrollment in the MSc program leading to the award of the Master's Degree (MSc) is set at three (3) semesters (90 ECTS), including the time for the preparation and evaluation of the Master's Thesis. The time allocated for the thesis cannot be less than three months.

The MSc program is intensive and spans a full calendar year. To obtain the Master's Degree, the Master's Student (MS) must have successfully attended and been examined in ten (10) compulsory courses, five (5) in the first semester and five (5) in the second semester. Additionally, the completion of a Master's thesis during the third semester of study is required. Course attendance and examination take place in the first and second semesters. The commencement of the Master's thesis (topic assignment, protocol preparation-presentation) may take place in the second semester, and it is completed (writing-presentation) during the third semester of study. Enrollment in the program is considered complete upon the completion of the minimum period of enrollment and the successful completion of the writing and public presentation of the Master's Thesis.

If a student fails an exam or exams and is deemed by the relevant study regulations to have not successfully completed the program, they are examined, upon their request, by a three-member committee comprising faculty members of the department who have expertise in the subject matter of the exam and are appointed by the Assembly. The examiner responsible for the course is excluded from the committee. If the student does not achieve a passing grade before the committee, the issue of their removal is brought before the competent bodies of the MSc program. Each department may specify sanctions in cases of delayed submission of assignments within the framework of a course and/or the Master's thesis.

### 5.2 Categories of Candidates for Enrollment in the MSc Program.

In the MSc program, graduates of Departments of Biomedical Sciences, Medicine, Dentistry, Pharmacy, Biology, Nursing, Medical Laboratories, Veterinary Medicine, Biochemistry, Biotechnology, Molecular Biology, Agriculture, Geology, Chemistry, Physics, Mathematics, Engineering, Polytechnic Schools, Economics and Management Sciences, Informatics, Social and Humanities Studies, Physical Education Sciences, Nutrition, Aesthetics-Cosmetology, and other Departments of Universities in the country, former Technical Institutions, and recognized equivalent institutions abroad are admitted. Also, graduates of other Departments of Universities, Technical Institutions, or other Higher Education Institutions may be admitted after a decision by the coordinating committee and the department assembly. Candidates may also be recent graduates who have successfully completed their undergraduate studies before the enrollment deadline and meet all admission requirements for the MSc program.

Categories of candidates eligible for enrollment in the MSc program are:

- Holders of undergraduate degrees from Greek universities (including former Technical Institutions).
- Holders of undergraduate degrees from recognized foreign institutions. A Master's degree is not awarded to a student whose undergraduate degree from a foreign institution has not been recognized by the Hellenic Authority.
- Members of the teaching and research staff of universities and technological educational institutes may enroll as supernumerary students, with only one (1) per year per MSc program organized by departments of the IHU, which is relevant to their academic title and work conducted in the IHU.

### 5.3 The number of entrants and Selection Criteria

The maximum number of admitted postgraduate students is set at fifty (50). In case of a tie, all tied candidates are admitted. Applications along with the necessary documents are submitted to the Department's Secretariat in printed or electronic form.

The selection criteria for candidates may include, but are not limited to:

- Degree Grade
- Detailed Grade Point Average in undergraduate courses relevant to the MSc
- Performance in the Dissertation, where applicable in the undergraduate studies
- Proficiency in at least one of the languages: English, French, German, Italian, Spanish (at level B2 or higher)
- Knowledge of a second and/or another foreign language
- Letters of Recommendation
- Interview by the competent Committee

Additional criteria, according to the decision of the Assembly, such as:

- a. Professional experience (duration and type)
- b. Research experience
- c. Publications and writing activity

### 5.4 Applications

Applications are submitted on a special form available on the MSc website. The documents that candidates must submit are:

- Application form.
- Detailed Curriculum Vitae.
- Copy of bachelor's/master's degree or its photocopy (the same applies to a second



degree or a postgraduate title).

- Copy of transcript of records or its photocopy.
- Proof of English Language Proficiency: a) State Language Proficiency Certificate for English at least level B2. b) First Certificate in English from the University of Cambridge (Lower). c) International English Language Testing System (IELTS) from Cambridge, Local Examinations Syndicate (UCLES)-The British Council – IDP Education Australia IELTS. d) Business English Certificate-Vantage (BEC Vantage) from Cambridge, Local Examinations Syndicate (UCLES). e) Michigan Certificate of Competency in English (MCCE) from the University of Michigan. f) London Tests of English Level 3-Upper Intermediate Communication from EDEXCEL. g) Certificate in Integrated Skills in English ISE II from Trinity College London. h) TOEFL Certificate. i) Degree from an English-speaking university or a degree in English Philology.
- Publications in scientific journals (peer-reviewed) or conference proceedings (peer-reviewed) or professional journals, related to the scientific field of the MSc (if available).
- Proof of Professional Experience (if available).
- Proof of participation in international exchange programs (if available).

#### 5.4 The process of evaluating applications

Initially, the Secretariat of the MSc program compiles a complete list of all applicants. The evaluation of candidate students, who have timely submitted the required documentation, is conducted by the Selection Committee for Admission in three phases:

##### **1st Phase: Preliminary selection**

The Selection Committee for Admission verifies all the required documents and reserves the right to request additional clarifications regarding the submitted documentation and/or to request certification of knowledge deemed necessary for participation in the MSc program. Finally, it rejects candidates who do not meet the requirements.

##### **2nd Phase: Evaluation Criteria (up to 80 points)**

The Selection Committee ranks candidates according to their grades and proceeds with the pre-announcement of the provisional selection list, announcing the period for objections. The total points of each candidate, as resulting from the second phase, amount to a maximum of 80 points. Postgraduate students can submit objections within a period of 5 working days from the posting/notification of the results of the 2nd Phase. The detailed evaluation of the second phase includes:

- Performance (degree grade) in undergraduate studies (up to 30 points)
- Available professional experience relevant to the MSc program (up to 15 points)

- Scientific and research work of candidates relevant to the subject of the MSc program (up to 15 points)
- Level of English language proficiency higher than the required level of the first phase (higher than B2) (10 points)
- Participation in European exchange programs (10 points)

### **3rd Phase: Interview (up to 20 points)**

This phase includes a personal interview where each candidate is evaluated by the members of the Selection Committee based on characteristics such as personality, breadth of knowledge, and willingness for individual and collective work. Each candidate is evaluated on a scale from 0 to 20 points. This score is added to the points of the 2nd phase to determine the candidate's overall score.

After examining the objections, the Committee prepares the final evaluation list based on the total score. Successful candidates are invited to respond in writing within five (5) working days whether they accept or decline their enrollment in the Postgraduate Program. Failure to respond within the specified deadline is equivalent to rejection. In case of refusals, the Secretariat informs the next candidates in line from the relevant list of successful candidates. The entire selection and enrollment process are completed no later than ten days before the start of the courses of the 1st semester of the MSc program.

### 5.5 Enrollment

The duration of registration and the required documentation are announced by the Secretariat of the MSc program. Successful candidates must personally appear at the Secretariat, send the relevant documents by mail, or submit them electronically for their registration in the MSc program. Registration is considered complete when all required documentation is provided. Positions of successful candidates who fail to register on time are filled by other successful candidates from the waiting list in order of merit.

## 6. CURRICULUM AND CONTENT

### 6.1 Curriculum

The total number of Credit Units (ECTS) required to obtain the MSc degree is 90.

For the award of the MSc, compulsory attendance and successful examination in all courses distributed over the first two semesters of study are required. The first semester (A') consists of 30 ECTS, and the second semester (B') also consists of 30 ECTS. In the third semester, each student is required to complete the dissertation (30 ECTS), the topic of which may be determined by the end of the first semester of study. The language of instruction for the program will be English.

Teaching hours can be allocated to remote synchronous teaching and to a mixed/hybrid system with face-to-face sessions for laboratory courses and distance teaching for theoretical courses. Each semester includes a unit of laboratory exercises.

Each ECTS corresponds to 26 hours of workload. The course program, teaching and research activities, practical exercises, and any other educational and research activities are defined as follows:

CODE	COURSE TITLE	TYPE OF COURSE	EXAMINATION PERIOD	TYPE OF EXAMINATION	ECTS
A.1	Clinical Microbiology and Infectious diseases Κλινική Μικροβιολογία και Λοιμώδη Νοσήματα	C, T - P	February	Written examination	6
A.2	Pharmacology - Drug action against pathogens Φαρμακολογία- Δράση φαρμάκων έναντι παθογόνων	C, T	February	Written examination	6
A.3	Community acquired infections and public health Λοιμώξεις κοινότητας και Δημόσια Υγεία	C, T	February	Written examination	6
A.4	Infection prevention and control Πρόληψη και επιτήρηση λοιμώξεων	C, T	February	Written examination	6
A.5	Bioinformatics and study design in infectious diseases - How to write a scientific paper Βιοπληροφορική και σχεδιασμός έρευνας στα λοιμώδη νοσήματα.	C, T	February	Written examination	6

<b>Sum of ECTS (1<sup>st</sup> Semester)</b>					<b>30</b>
B.1	Investigation and diagnosis of imported infection- tropical diseases Μελέτη και διάγνωση λοιμώξεων ταξιδιωτών και τροπικών νοσημάτων	C, T	June	Written examination	6
B.2	Emerging Infectious Diseases Αναδυόμενα λοιμώδη νοσήματα	C, T	June	Written examination	6
B.3	Resistance mechanisms in antibacterial Μηχανισμοί βακτηριακής αντίστασης στα αντιμικροβιακά	C, T - P	June	Written examination	6
B.4	Molecular diagnostics and Infectomics Μοριακή διάγνωση και Λοιμωξιολογία	C, T	June	Written examination	6
B.5	Infections in hematologic patients - Central nervous system infections and advances in neurosciences Λοιμώξεις σε αιματολογικούς ασθενείς - Λοιμώξεις κεντρικού νευρικού συστήματος και εξελίξεις στις Νευροεπιστήμες	C, T	June	Written examination	6
<b>Sum of ECTS (2<sup>nd</sup> Semester)</b>					<b>30</b>
C.1	Project-Thesis** Εκπόνηση Διπλωματικής Εργασίας			Oral examination	30
<b>Sum of ECTS (3<sup>rd</sup> Semester)</b>					<b>30</b>
<b>Total ECTS credits</b>					<b>90</b>

*C = Compulsory, T = Theoretical, P = Practical course with laboratory exercises*  
*ECTS: European Credit Transfer System*

The courses for the first two semesters consist of a total of 10 mandatory courses with both theoretical and laboratory background according to the above table.

1st Semester (Total 30 ECTS): A1 to A5

2nd Semester (Total 30 ECTS): B1 to B5

3rd Semester (Total 30 ECTS): Thesis

The courses are taught every Saturday and Sunday from 10:00 to 18:00. The days and hours of teaching may vary by decision of the School Council or the Director of the MSc program.

## 6.2 Syllabus

### A.1 Clinical Microbiology and Infectious diseases

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.

Indicative 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

### A.2 Pharmacology- Drug action against pathogens

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.

Indicative Syllabus: 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

### A.3 Community acquired infections and public health

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.

Indicative Syllabus: 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

#### A.4 Infection prevention and control

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.

Indicative Syllabus: 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

#### A.5 Bioinformatics and study design in infectious diseases – How to write a scientific paper

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.

Indicative Syllabus: research methodology, biostatistics, develop a thesis statement, create a research paper outline, write a first draft, introduction, conclusion, presentation of the results, revision process, 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.

#### B.1 Investigation and diagnosis of imported infection- tropical diseases

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.

Indicative Syllabus: 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.

### B.2 Emerging Infectious Diseases

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.

Indicative Syllabus: 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.

### B.3 Resistance mechanisms in antibacterial

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.

Indicative sections: Types of antibiotics and their evolution over the years, Mechanisms and pathways of microbial resistance to antibiotics, the evolution of resistance to  $\beta$ -lactams, the appearance of superbugs and the treatment of multidrug-resistant bacteria, New antibiotics and the return to older ones, Preventing the spread of microbial resistance

### B.4 Molecular diagnostics and Infectomics

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.

Indicative Syllabus: 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 CRISPR-cas technology in the diagnosis of bacterial infections, Mass spectrometry and its future applications, Molecular techniques in the diagnosis of COVID-19

#### B.5 Infections in hematologic patients - Central nervous system infections and advances in neurosciences

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.

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.

Indicative 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.



## 7. INSTRUCTORS

Indicative List of Instructors (Faculty members, adjunct faculty from other institutions, PhD holders, Special Scientific Personnel, Teaching Assistants with a Master's degree) Relevant to the Subject of the MSc Program:

Maria Chatzidimitriou, Professor, MSc Program Director

Following is an alphabetical list of faculty members and adjunct faculty members of the Department of Biomedical Sciences who will participate in teaching the program, supervision, and the three-member committee for the preparation of the master's theses of the graduate students:

Eleni Andreadou, Associate Professor

Ourania Giannakou, Associate Professor

Phaedra Eleftheriou, Professor

Elias Karapantzos, Professor

Vasiliki Konstantinidou, Associate Professor

Eugenia Lyberaki, Assistant Professor

Styliani Makri, Assistant Professor

Matthaios Bobos, Assistant Professor

Stella Mitka, Professor, Vice President

Vasilios Papaliagkas, Associate Professor

Androniki Papoutsi, Assistant Professor

Petros Skepastianos, Professor, Member

Following is an alphabetical list of indicative faculty members and adjunct faculty members from other departments who will participate in teaching the program, supervision, and the three-member committee for the preparation of the master's theses of the graduate students:

Trevor M Jones, Prof., CBE FMedSci PhD DSc Hon FRCP FBPhS FRSM FRSC FLSW, Kings' College London

Achilles-Timoleon Vyzantiadis, Professor, Department of Medicine, AUTH

Georgia Gioula, Professor, Department of Medicine, AUTH

Maria Exintari, Professor, Department of Medicine, AUTH

Theoklis Zaoutis, President Greek National Organization for Public Health, Professor of Pediatrics, Department of Medicine, NKUA

Georgia Kaiapha, Associate Professor, Department of Medicine, AUTH

Lida Kovatsi, Professor, Department of Medicine, AUTH

Gikas Magiorkinis, Assistant Professor of Hygiene and Epidemiology, Medical School, NKUA

Antigone Malousi, PhD, Special Scientific Personnel in Bioinformatics, Department of Medicine, AUTH

Theodoros Lialiaris, Professor, Department of Medicine, AUTH

Symeon Metallidis, Professor, Department of Medicine, AUTH

Anna Papa-Konidari, Honorary Professor, Department of Medicine, AUTH

Georgios Papazisis, Professor, Department of Medicine, AUTH

Eftychia Protonotariou, Associate Professor, Department of Medicine, AUTH

Nikolaos Raikos, Professor, Department of Medicine, AUTH

Christos Savvopoulos, Professor, Department of Medicine, AUTH

Lemonia Skoura, Professor, Department of Medicine, AUTH

Anna-Bettina Haidich, Associate Professor, Department of Medicine, AUTH

Dimitrios Hatzidimitriou, Professor, Department of Medicine, AUTH

Following is an alphabetical list of indicative PhD holders, PhD candidates from the department and elsewhere, and special scientific personnel who will participate adjunctively with the main instructors in teaching the program, supervision (only for PhD holders), and the three-member committee for the preparation of the master's theses of the graduate students:

Athanasios Kossivakis, PhD, MSc, Biologist, EKAPY

Ilias Pessach, PhD, Hematologist at Athens Medical Group

Sotiris Varlamis, PhD, Academic Fellow, Department of Biomedical Sciences, AUTH

Asimoula Kavvada, MSc, MD, PhD Candidate and Academic Scholar, Department of Biomedical Sciences, AUTH

Dimitrios Kavvadas, BSc, MSc, MD, Department of Medicine, AUTH

Maria Mavridou, MSc, PhD Candidate and Academic Scholar, Department of Biomedical Sciences, AUTH

Dimitrios Pilalas, PhD

Drosos Tsavlis, MD, PhD, Department of Medicine, AUTH

Olga Tsahouridou, PhD

Fani Chatziadamou, PhD, Academic Scholar, Department of Biomedical Sciences, AUTH

Stavroula Hatzidimitriou, PhD

Theofilos Chrysanthidis, PhD, Senior Registrar A' ESU

## 8. MONITORING OF STUDY PROGRAM - OBLIGATIONS AND RIGHTS OF GRADUATE STUDENTS

Teaching is conducted either remotely or in a hybrid format for all or part of the students and instructors, either with physical presence of students and the instructor in a specially designed classroom for the needs of the postgraduate program or exclusively through the method of synchronous remote teaching. Additionally, the method of asynchronous (up to 25% of the total credits) distance learning may also be implemented, as provided by Article 88 of Law 4957/2022.

Postgraduate students have all the rights, benefits, and facilities provided for undergraduate students except for the right to free textbooks. The Department is obligated to provide facilities for postgraduate students with disabilities or special educational needs.

### 8.1 The Obligations of Students

Postgraduate students admitted to the MSc program are required to:

- Attend classes continuously, signing attendance records if teaching is conducted in person. If teaching is done remotely, their attendance must be demonstrated through technical and digital means.
- Submit required assignments for each course within the specified deadlines.
- Attend scheduled examinations.
- Respect and adhere to the Regulations of Postgraduate Studies, decisions made by the bodies of the MSc program, the Department, and the IHU, as well as academic ethics.
- Pay tuition fees.
- Submit to the Secretariat, before the evaluation of their thesis, a signed statement declaring that their thesis is not a product of plagiarism, neither in whole nor in part.

Failure to comply with the above obligations may result in sanctions, including exclusion from the program.

### 8.2 The Rights of Students

#### **Absences - Suspension of Studies**

The limit for absences in the postgraduate program is up to three (3) occurrences. For absences beyond three (3) occurrences in a course, the Coordinating Committee decides on either the completion of a special supplementary assignment, with the approval of the instructor, repeating the course, or excluding the student from the specific program.

For a serious reason (health, professional, etc.), a postgraduate student may apply for a suspension of studies. If the application is approved by the Coordinating Committee, the student may attend the immediately following cycle of the postgraduate program without

reapplying and without being evaluated. In the case that the student is a scholarship recipient, the scholarship entitlement will be reconsidered in the next cycle of studies. If the suspension application is submitted during the first month, the student attends the courses of the new cycle from the beginning. If the application is approved after the completion of the first month of courses, then the student may attend the courses from the point where the suspension of studies began and onwards.

### **Student Welfare**

Postgraduate students who do not have medical and hospital care from any insurance agency are entitled to full medical and hospital care in the National Health System (NHS) in accordance with the applicable provisions. The issuance of the European Health Insurance Card (EHIC) for the above categories of students who travel to countries of the European Union, as well as the coverage of any expenses that may arise, continues to be provided by the institution's services.

Active university students are provided with free meals and accommodation according to the criteria and procedure provided by the applicable legislation.

The University ensures the accessibility of students with special needs to external (e.g., sidewalks, parking spaces) and internal spaces (elevators, offices, event spaces, etc.) of the institution.

Within its financial capabilities, the International University of Greece, by decision of the Departments or Schools, may grant awards and excellence scholarships to students. Sources of funding may include donations, grants, or bequests, and other legal sources. The terms and conditions of their award, when not provided by the sponsor or donor, are determined by decisions of the Senate.

### **Academic Advisor**

The study advisor guides and supports students in their study programs. By decision of the Assembly of each Department, the assignment of study advisor duties to permanent members of the academic staff of the respective Department is appointed on a rotating basis, with an annual term starting on September 1st of each academic year and may be renewed with the consent of the interested party. The assignment can be made per student, matching the list of academic staff members of the Department with the corresponding list of first-year students of each academic year. Study advisors advise and support first-year students to facilitate their transition from secondary to tertiary education. They inform, educate, and advise students on their studies, as well as on matters related to their progress and successful completion.

Academic staff, administrative staff, laboratory directors, department directors, and department chairs, as well as relevant university services, collaborate and support study advisors in their work, while taking into account their information, observations, suggestions,

and requests for any deficiencies or malfunctions that create problems for students and any proposals for their resolution.

### **Handling of Complaints - Objections**

Management of complaints submitted electronically on the website of the Department's Postgraduate Program.

Complaints received (by the Postgraduate Program's Secretariat) via the form are immediately sent by email or plain copy to the Director of the Postgraduate Program. Postgraduate students have the right to submit complaints regarding their studies, and for this reason, a special complaints management mechanism is established and implemented in each Postgraduate Program. Complaints may relate to the quality of services provided by the Department, which organizes the Postgraduate Program, educational, research, and administrative services. The complaints policy is addressed to active postgraduate students and aims to resolve disputes or problems, such as:

- i. Disagreements on matters of study and attendance,
- ii. Inappropriate behavior by a member of academic or administrative staff or a fellow student,
- iii. Inadequate information provided to students by a member of academic or administrative staff.

Students may submit a complaint when an action or decision by a Department member or collective body is inconsistent with the current legal framework, and especially with:

- the Regulations of the Postgraduate Program and the Study Guide,
- the Code of Ethics and Deontology and/or the prescribed procedures concerning academic teaching and research,
- the rational use of facilities and infrastructure,
- the protection of intellectual property and intellectual rights,
- proper academic conduct and behavior in the workplace,
- compliance with equal treatment, equality, and respect for diversity,
- compliance with legislation regarding harassment and violence in the workplace.

Postgraduate students have the right to submit a complaint to:

- The Student Advocate for matters requiring mediation between postgraduate students and professors or administrative services of the Institution. The Student Advocate does not intervene in substantive teaching or grading matters but only examines instances of arbitrariness or violations of ethical rules during examinations (written or oral).
- The Ethics Committee of the Institution for violations of ethical rules within the

framework of their studies.

- The Gender Equality Committee for issues related to gender discrimination.
- The Data Protection Officer (DPO) for issues related to the protection of personal data.

The complaints management mechanism is structured in the following stages:

Stage 1: Direct Conciliatory Resolution. Exercise of the right to a hearing: examination of the complaint of the postgraduate student by a member of the academic staff of the Postgraduate Program. The postgraduate student reports the complaint to a member of the academic staff/administrative staff (the responsible professor or instructor of the course or the academic advisor) or a member of the administrative staff (the head of the secretariat), depending on the nature of the complaint. The Department member examines the complaint in collaboration with the student and proposes a solution. In cases where, after the completion of the direct resolution process, the student objects to the proposed resolution or the situation remains problematic, the student may submit the complaint in writing to the Academic Advisor within 15 days from the appearance of the problem.

Stage 2: Mediation-Administrative Review. Mediation: Examination of the complaint of the postgraduate student by the Academic Advisor. The Academic Advisor examines the complaint in collaboration with the postgraduate student and proposes a solution. The Academic Advisor may also communicate with other members of the Department to seek their assistance in resolving the issue. Administrative review: Examination of the student's complaint by the Coordinating Committee of the Postgraduate Program. The Coordinating Committee may, depending on the nature of the problem, call the student for a hearing and seek the assistance of any member or body of the Department or the Institution or refer the complaint to the Department Assembly. The student is duly informed of the decisions made regarding the complaint within a reasonable timeframe.

Stage 3: Appeal and Final Re-examination of the Complaint. Appeal to the Department Assembly. This procedure may only be activated if the Department Assembly has not already addressed the specific issue within the framework of the Administrative Review. The decision taken by the Department Assembly, either within the framework of Stage 2 or Stage 3, is final.

## 9. EXAMINATIONS AND GRADING OF STUDENTS

The examinations of the semester courses are held at the end of each semester. The duration of the examination period for each semester is determined by decision of the relevant body. The Coordinating Committee of each Postgraduate Program prepares and announces the timetable of examinations for each semester in advance, no later than ten (10) days before the start of the examinations. Additionally, postgraduate students may be examined in courses from both semesters before the start of the winter semester (September retake). The duration of the examination period is set at two (2) weeks. The aforementioned examination is a retake of the courses from the corresponding semesters. The conduct of examinations follows the regulations applicable to undergraduate student examinations.

Assessment in individual courses is conducted through written or oral examinations, assignment submissions, or a combination thereof. The grading scale for evaluating the performance of postgraduate students is defined from zero (0) to ten (10), as follows:

- Excellent (8.5 to 10)
- Very Good (6.5 to 8.5, exclusive)
- Good (6 to 6.5, exclusive)

The passing grade is six (6) and above.

The final grade of the Postgraduate Program is derived from the weighted average of the courses of the Postgraduate Program and the Master's Thesis (the weighting is based on the credit units of the courses and the Master's Thesis) and is calculated, with precision to the second decimal place, as follows:

The grade of each course and the Master's Thesis (where applicable) is multiplied by the corresponding number of credit units (ECTS), and the sum of the products is divided by the minimum number of credit units required for obtaining the Postgraduate Diploma.

Postgraduate Program Grade = [sum of products (grade of each course x ECTS of each course) + (grade of Master's Thesis x ECTS)] / (total ECTS)



## 10. EVALUATION OF COURSES AND INSTRUCTORS

After the completion of course deliveries, postgraduate students evaluate it based on a questionnaire they fill out. The relevant form covers the course in terms of its content, the teaching method of the instructor, its relevance to practice, and the principles and philosophy of the Postgraduate Program. The evaluation of the instructor by postgraduate students is based on criteria such as their knowledge and ability to convey it to students, their preparation, the use of contemporary internationally established bibliography, their willingness to answer questions, the timely grading of assignments and written examinations, as well as adherence to the course's teaching hours. The evaluation of instructors by postgraduate students is the responsibility of the Department's Teaching and Research Staff and the Secretariat of the MSc program, following a process defined and approved by the Institutional Quality Assurance Unit (IQUA) of the Institution. The analysis of the evaluation with the observations of postgraduate students and the comparative tables are issued through the Information System (IS) of the IQUA of the Department of Academic and Student Affairs (IHU). After the submission of the course grade by the instructor, they can be informed via the IS about the evaluation results. In cases with serious complaints from postgraduate students, the Department's Assembly, following a recommendation from the Coordinating Committee, has the authority to take appropriate measures (recommendation, revocation of teaching rights) to address the identified issues.

## 11. PREPARATION OF MASTER'S THESIS

The preparation of the master's thesis is mandatory. The language of the thesis is English, with an extensive summary in Greek, German, or French. In any case, an abstract of the thesis in English will be included. The topic must fall within the subject of the MSc program and, more specifically, the specialization chosen by the student, utilizing the knowledge acquired in the courses of the MSc program and in specific applications.

Regarding the assumption, preparation, and support of the Thesis, the following are defined:

### a. Application - Submission of topic

The MSc student has the right to submit a topic for the MSc thesis after successfully completing the courses specified in the internal regulations of each MSc program. The student submits an application, indicating the proposed title of the thesis, the proposed supervisor, and attaches a summary of the proposed work to the Secretariat of the MSc program. MSc students who do not submit the application within the time limits specified by the internal regulations postpone, at their own responsibility, the start of the MSc thesis by at least one semester.

### b. Supervision of MSc Thesis

The Coordination Committee, upon request of the candidate, appoints the supervisor and forms the three-member examination committee for the approval of the thesis, one of whose members is the supervisor.

### c. Presentation and completion of the Master's Thesis

After completing the M.Sc., the postgraduate student submits copies of the final Master's Thesis to the Supervisor and the other two members of the Examination Committee. If there is a positive evaluation from the Examination Committee, the date and place of the public defense/evaluation of the M.Sc. are determined by the Department Assembly or the P.C. The extent and depth of the oral examination during the defense are proportional to the format of the presentation of the work. After the presentation-defense of the M.Sc., the Examination Committee prepares and signs the minutes of the Public Presentation of the M.Sc., which includes any comments or remarks as well as the final grade. Upon approval by the Committee, it is mandatory to post it on the website of the relevant Department or School. In case of a negative evaluation, there is the possibility of resubmitting it after two months, provided that the postgraduate student improves the work according to the observations of the Examination Committee. In the event of a second failure, the postgraduate student is excluded from the award of the Master's Degree. The final complete copy of the M.Sc. is submitted, after acceptance, to the library of the Graduate Institution as well as in electronic form in the department's archives. The intellectual property rights to the Master's Thesis belong to the candidate, who grants the Graduate Institution a non-exclusive license for the entire duration of the work's protection, including non-commercial use for all property rights to the work, its use for research and teaching included. The Master's Thesis can be theoretical,

applied, or experimental and may contain recognizable elements of originality and contribution to scientific knowledge. The text must meet the specifications and structure of a scientific work, i.e., it must include a description of the topic of the work, a description of the findings/results of the work, methodology, assumptions, bibliography, and any other necessary supportive or explanatory elements (necessary figures, diagrams, photographs, images, etc.). It is written in English and accompanied by a brief summary of approximately 300 words in English and Greek (or French or German). The length of the work may be at least 10,000 words.

### Plagiarism

The postgraduate student, when submitting any master's thesis, is obliged to mention if they used the work and opinions of others. Departments will check master's theses using specialized plagiarism detection software like Turnitin. Additionally, the works of postgraduate students will also be subject to text composition checks by technologically supported software (e.g., AI agents/chatbots, ChatGPT, etc.). Copying is considered a serious academic offense. Plagiarism includes copying someone else's work, as well as using someone else's work, whether published or unpublished, without proper citation. Quoting any supporting material, even from the candidate's own studies, without proper reference, may result in a decision by the Department Assembly for deletion. In the above cases, after a reasoned proposal by the supervisor Professor, the Department Assembly or the P.C. may decide on deletion. Any offense or violation of academic ethics is referred to the M.Sc. Coordinating Committee for judgment and recommendation for addressing the problem at the Department Assembly. Offenses also include violations of copyright laws by a postgraduate student during the writing of papers within the framework of courses or the completion of a master's thesis.

## 12. TECHNICAL INFRASTRUCTURE

Courses will be conducted remotely and in a hybrid format at the Department of Biomedical Sciences of the University. The existing technical infrastructure covers the operational needs of the Master's Program and consists of: a) classrooms, b) laboratories, c) libraries, d) scientific equipment, e) computers. Additional specialized needs of the program will be met with the procurement of additional equipment and the configuration of additional spaces, according to the emerging needs. In the department's classrooms where classes are held, there are systems for fresh air supply and exhaust, modern air conditioning units ensuring adequate heating and cooling, projection screens, overhead projectors, speakers, as well as teleconferencing or distance learning capabilities. Additionally, special provisions have been made for people with disabilities, with the construction of special and secure access methods to the classrooms and specially designed restrooms.

The Department of Biomedical Sciences has all the necessary infrastructure, technical equipment, and expertise to conduct all courses of the Master's Program exclusively or in combination through modern remote teaching or/and asynchronous teaching or face-to-face teaching, according to the current regulations in force. Specifically, the Master's Program has electronic and technical equipment, audiovisual media, and digital educational material and tools for conducting classes. Already, within the Department of Biomedical Sciences, through contracts with cooperating institutions, electronic communication spaces have been created, fully equipped, to assist in face-to-face and electronic teaching in those courses where it is feasible. Furthermore, examinations are conducted either with the physical presence of students and the instructor in a specially configured classroom or through the method of modern remote examination using all the digital tools available to the University, ensuring that they are reliable and impeccable, as required by the current legislation in force.

### 12.1 Remote Education

According to Government Gazette 5958/2023, Number DF 2.1/18853, the MSc program can operate remotely and/or in a hybrid manner. The International Hellenic University (IHU), due to its profile and geographic dispersion, places great emphasis on internationalizing its study programs and optimizing the use of digital services to support them. IHU has established and operates the following Centers:

- Center for Teaching and Learning Support (CTL: <https://ctl.ihu.gr/>).
- Lifelong Learning Center (LLC: <https://kedivim.ihu.gr/>).
- Network Operations Center (NOC IHU).

These Centers, in collaboration with the IHU Postgraduate Studies Committee, work together to establish specifications and provide a comprehensive set of e-learning support services, as well as practical guidelines for the development of electronic courses, leveraging

international experience and practice. These services are available to faculty members to incorporate new technologies at both postgraduate and undergraduate levels, as the blended learning model is widely used in the academic environment of IHU.

The philosophy of IHU focuses on disseminating knowledge and establishing hardware infrastructure in its Departments, so that support for faculty members can be provided locally by the technical support staff of each (participating) Department implementing the Postgraduate Program of Studies. At IHU, e-learning support processes include:

- Single Sign-On (SSO) services for easy access to all Academic Resources/Applications.
- Content Management and E-Learning Environments (moodle/eclass) to support synchronous and asynchronous distance learning.
- Video Conferencing Services (Zoom, Google Meet, Microsoft Teams, Jitsi, etc.).
- Streaming services.
- Question Submission/Complaint Management/Academic Advisor services.

The MSc program enhances student accessibility and promotes the following benefits:

- Participation: Ensuring seamless accessibility.
- Better User Experience: An accessible course is designed with the learner in mind, with clear and concise language, descriptive links and headers, and keyboard-accessible content.
- Flexibility and Adaptability: Learners can choose the format that suits them best, whether it's audio, video, or text, and tailor the course to their individual needs and preferences.
- Increased Engagement and Mobilization: An accessible course is more attractive to all learners, incorporating interactive learning activities and diverse representation.
- Enhanced Learning: An accessible course is designed to be inclusive and responsive to the needs of all students, resulting in improved learning outcomes.

The MSc provides clear instructions/information on the following topics:

- Course Summary.
- Objectives and Learning Goals (overall or per unit).
- Structure - Course Content (e.g., number of units, number of chapters, etc.).
- Course Schedule with emphasis on important dates (e.g., online meetings, assignment submissions, exams, etc.).
- Grading Scale and Evaluation Rules.
- Assessment Methods, for example, selection or combination of the following:
- Assignments (individual or collaborative),

- Exams (in-person or remote),
- Interviews (in-person or remote),
- Overall participation (e.g., participation in course forums).
- Weighting of each assessment method (e.g., 30% for a certain assignment, 15% for participation, etc.).
- Educational Material and possible additional learning sources.
- Determination of Video Conferencing System (e.g., zoom, Google Meet, Microsoft Teams, etc.) and access method (e.g., via IHU SSO, using a specific identifier, using a secure link).
- Methods of feedback/evaluation of the course.
- Relevant Bibliography.

Educational materials may include a combination of the following sources:

- Scientific articles from Greek/International literature in electronic format,
- Course notes,
- Case studies (where applicable),
- Video lectures (live - on demand),
- Links to useful sources and (reliable) external websites,
- Comprehension/self-assessment questions,
- Sample exercises,
- Discussion forums,
- Additional files for understanding the educational material (pdf, word, ppt, xls, etc.),
- Frequently Asked Questions (FAQs),
- Additional bibliography.

Learners have the ability to communicate with the Instructor of the Postgraduate Program they are attending, either by using email or through the online education platform used by the Postgraduate Program, for the formulation and resolution of questions/issues related to the curriculum and the overall educational process.

Issues related to identity verification, plagiarism, and the privacy of personal data comply explicitly with the IHU's policy on personal data (see NOC) and the Ethics and Deontology Committee of IHU.

The support methods for the educational process of all involved are mentioned below:

- Administrative Support with a communication timeline
- Technical Support with a communication timeline

- Educational Support from the instructor
- Use of online chat or Frequently Asked Questions (FAQs) forums.
- Online Information Sources (e.g., video tutorials, pdf help files, etc.).
- Implementation guides for Instructors.
- Course monitoring guides.
- Student Advisor.
- Student Advocate.
- Complaint Mechanism.

In case of any technical glitches during the implementation of the Postgraduate Program of Studies and especially during examinations using real-time technologies (e.g., zoom), where potentially, in case of inability to resolve the technical issue immediately, the possibility of re-examination or extension of the submission deadline or repetition of the remote examination is provided.

## 12.2 Infrastructure for Laboratory Modules

The Department of Biomedical Sciences has 9 laboratory exercise rooms, 8 research areas, and a computer island with 20 seats (shared with Nursing Department).

The laboratory spaces available for the needs of the Postgraduate Program of Studies are as follows:

- Hematology Laboratory Exercise Room (75 sq.m., 25 workstations)
- Microbiology Laboratory Exercise Room (75 sq.m., 25 workstations)
- Mycology-Parasitology Laboratory Exercise Room (75 sq.m., 25 workstations)
- Chemistry-Biochemistry-Virology Laboratory Exercise Room (50 sq.m., 20 workstations)
- Biology-Molecular Biology-Biotechnology-Genetics Laboratory Exercise Room (75 sq.m., 25 workstations)
- Immunology Laboratory Exercise Room (75 sq.m., 25 workstations)
- Clinical Chemistry Laboratory Exercise Room (50 sq.m., 16 workstations)
- Medical Cytology-Pathological Anatomy Laboratory Exercise Room (75 sq.m., 25 workstations)

The research areas available for the needs of the Postgraduate Program of Studies are as

follows:

- Biochemistry-Clinical Chemistry-Virology-Molecular Diagnostics research laboratory, 50 sq.m., with 6 workstations (room O12B) on the 1st floor
- Biochemistry Research Laboratory 1, 12 sq.m., with 2 workstations (inside room O15) on the 1st floor
- Biochemistry Research Laboratory 2, 12 sq.m., with 2 workstations (room O16) on the 1st floor
- Medical Biotechnology-Genetics-Molecular Diagnostics research laboratory, 40 sq.m., with 8 workstations (room O11 on the 1st floor)
- Classical Histology and Immunohistology and Molecular Medical Histopathology-Cytopathology research laboratory, 20 sq.m., with 2 workstations (room O14B on the 1st floor)
- Microbiology II-Immunology research laboratory, 20 sq.m., with 2 workstations (room O21B on the 1st floor)
- Classical and Molecular Mycology-Parasitology and Medical Microbiology I research laboratory, 80 sq.m., with 12 workstations (inside room I7 on the ground floor)
- Hematology-Thrombophilia research laboratory, 20 sq.m., with 1 workstation (inside room I6 on the ground floor).

All laboratories are fully equipped with instruments, apparatus, and consumables according to the requirements of each undergraduate, postgraduate, and research study program, such as: Instruments for the application of spectroscopic techniques (photometric, fluorimetric, and chemiluminescence), immunological techniques (ELISA, EIA), chromatographic techniques, electrophoretic techniques, PCR and DNA analysis techniques, cell cultures and tissue cultures, optical microscopes, stereo microscopes, immunofluorescence microscope, Class II vertical laminar flow hoods, etc.



Finally, the department has 2 lecture halls with a capacity of 50 people each.



*Figure 3 Indicative presentation of laboratory and research spaces in the Department of Biomedical Sciences:*

- 1. Laboratory Exercise Room for Biochemistry-Virology-Chemistry*
- 2. Laboratory Exercise Room for Biology-Genetics-Biotechnology*
- 3. Hematology Laboratory Room*
- 4. Laboratory Exercise Room for Mycology-Parasitology*
- 5. Research Laboratory Space for Biology-Genetics-Biotechnology*

### 13. OTHER EDUCATIONAL AND RESEARCH ACTIVITIES

Apart from teaching courses in the MSc program, parallel educational and research activities can be conducted using resources from the MSc program or through donations, sponsorships, funding, etc., such as:

- Organizing conferences.
- Publishing books, notes, monographs, undertaking and conducting special studies.
- Undertaking research programs.
- Collaboration protocols with scientific and productive entities.
- Participants in the parallel educational activities of the MSc program are awarded a relevant certificate by the Coordinating Committee.

## 14. TUITION FEES – SCHOLARSHIPS – TUITION WAIVERS

For the entire program, the tuition fees amount to 3,900 euros. The amount is distributed in three equal installments for each of the three semesters of study. The tuition fees may be modified annually following a proposal from the Department Assembly upon recommendation from the Departmental Committee.

The first installment is due upon registration or no later than the end of the third week of the first semester. The second installment is due no later than before the commencement of the mid-term examinations of the first semester, and the third installment is due no later than before the commencement of the mid-term examinations of the second semester.

In case a postgraduate student is unable to meet the aforementioned installment payments of the tuition fees, they may request a payment arrangement that facilitates them, submitting a reasoned request to the program's secretariat. The request is reviewed by the Program's Coordinating Committee, which decides accordingly.

Only in cases where tuition fees have been paid, they may be refunded per semester in exceptional circumstances for discontinuation, upon a written request from the postgraduate student, adequately justified to the Coordinating Committee before the commencement of the courses. The decision regarding the tuition fee refund is made by the Departmental Assembly, following a recommendation from the Coordinating Committee. In cases where a discontinuation request is submitted after the start of the courses, tuition fees are not refunded.

The payment of compensations to professors and instructors is made after the completion of the courses and the delivery of the grading for the taught course they undertook.

In the Department of Biomedical Sciences of the School of Health Sciences of the University, the existing facilities and equipment largely meet the requirements of the MSc program. Additionally, part of the income from the MSc program is used each academic year to improve the facilities, ensuring that postgraduate courses are conducted in more modern and suitable spaces for teaching, equipped with state-of-the-art technical infrastructure and audiovisual material (projection screens, projectors, sound, and microphone installation, etc.), covered by the MSc income. In proportion to the various benefits provided to students, the imposition of tuition fees is deemed necessary for the following reasons: expenses for the transportation of lecturers and administrators between the two departments for in-person theoretical and laboratory courses, expenses for further specialized equipment for laboratory rooms and classrooms, significantly increased operating expenses (consumables, mainly expensive molecular and biochemical reagents) especially for student exercises, but even more so for the completion of their experimental and research projects.

Enrolled students may attend for free, provided they meet the financial or social criteria and the excellence criteria during the first cycle of studies, which corresponds to a grade point average of at least seven and a half out of ten (7.5/10). This applies if the evaluation in the undergraduate degree submitted for admission to the MSc program has been conducted according to the ten-point scale of assessment of the Higher Education Institution (HEI) of the country of origin; otherwise, this criterion is applied proportionally according to the respective assessment scale, if the degree submitted has been awarded by a foreign institution. The total number of students attending for free cannot exceed thirty percent (30%) of the total enrolled students per academic year. If, during the numerical calculation of the number of beneficiaries exempt from tuition fees, a decimal number arises, it is rounded to the nearest integer unit. If the number

of eligible exemptions exceeds the percentage of the current one, the beneficiaries are selected in descending order until the number is reached. Applications for free attendance per MSc program according to this regulation are submitted after the completion of the student admission process to the MSc program. The right to free attendance is granted to the MSc student who: a) the average sum of the taxable incomes of the two (2) last financial years of the total members of the family of the applicant for exemption from tuition fees, i.e., the applicant themselves, their parents, regardless of whether they file a joint or separate tax return, and their siblings up to twenty-six (26) years old, if unmarried and have the same taxable income as defined in Article 7 of Law 4172/2013 (Government Gazette A' 167), does not exceed seventy percent (70%) of the national median disposable income, according to the most recent data published by the Hellenic Statistical Authority (EL.STAT.), if the applicant has not reached the age of twenty-six (26) and is unmarried or has not entered into a cohabitation agreement; b) the average of the individual taxable income of the two (2) last financial years of the applicant does not exceed one hundred percent (100%) of the national median disposable income, according to the most recent data published by EL.STAT., if the applicant has reached the age of twenty-six (26); c) the average sum of the taxable income of the two (2) last financial years of the applicant for exemption from tuition fees and their spouse or cohabiting partner, if married or has entered into a cohabitation agreement, regardless of whether they submit a joint or separate tax return, does not exceed one hundred percent (100%) of the national median disposable income, according to the most recent data published by EL.STAT.

If the applicant for exemption has not reached the age of twenty-six and is a child of a family with three or more children, or a child of a single parent, or an orphan with at least one deceased parent, or a person with a disability, or a member of a household with a person with a disability, they may apply for a fifty percent (50%) exemption from tuition fees if the average sum in section a) of paragraph 4 exceeds seventy percent (70%) but does not exceed one hundred percent (100%) of the national median disposable income. The examination of the criteria for exemption from tuition fees is conducted by the Department Assembly, and a reasoned decision regarding the acceptance or rejection of the application is issued. The possibility of exemption from tuition fee payment is provided exclusively for enrollment in one (1) MSc program organized by domestic HEIs. This regulation does not apply to third-country nationals.

The Administrative Council of the IHU may decide to grant scholarships as partial exemptions from tuition fees to staff employed in the IHU and the Special Account for Research of the IHU, provided they support the educational process and provide supplementary teaching work, with a maximum amount of 1000 euros for scholarship per student, for up to 120 hours of employment (at the maximum scholarship amount) in one academic semester. Selection of postgraduate students is based on their performance in the first academic semester.

Permanent administrative staff of the IHU and those employed under project contracts have the opportunity to enroll without paying tuition fees for the corresponding MSc program. For scholarships in this category, it must be communicated to the applicant that in case of termination, resignation, or termination of employment with the institution before obtaining the degree, the privileged exemption from tuition fees ceases to apply. The remaining tuition fees are calculated as a proportional remainder from the full tuition fees for the period after the end of employment or engagement.

Scholarships, both repayable and non-repayable, or excellence awards are granted to postgraduate students according to the decision of the Assembly or the Departmental Postgraduate Studies Committee (in case of interdepartmental, interinstitutional, or Joint MSc programs). Scholarships are awarded based on objective criteria, including academic, financial, and social aspects, which may include: Academic: a) Regular

attendance. b) Grade point average of the previous semester. c) Undergraduate Grade. d) Recent academic achievements (awards and honors). Financial: Taxable income. Social: a) Divorced with dependent children. b) Candidate with a disability. c) Single-parent family. d) Orphaned with both parents deceased and under the age of 25. e) Child of a large family. f) Siblings as students. Upon recommendation from the Coordination Committee of the MSc program, a call for scholarship applications is announced. Candidates must complete all mandatory fields of the application with the required supporting documents and submit them to the Department Secretariat within the deadlines specified in the Call. The application constitutes a Declaration of Responsibility under Law 1599/1986. The Coordination Committee evaluates and ranks the applications based on the criteria defined in the internal Regulations of the MSc program and submits the list of candidates to the Assembly or the Departmental Postgraduate Studies Committee. The maximum number of scholarships per MSc program is set at twelve (12) per semester of study.

## 16. DIPLOMA AWARD CEREMONY

The graduation ceremony is organized as a public open event after the completion of the three academic semesters of the MSc program. It is attended by the Rector and Vice-Rectors of the University, the Director of the MSc program, the President, and the faculty members of the Department of Biomedical Sciences, as well as the instructors of the MSc program. The Master's Degree Diploma is printed on special, aesthetically pleasing parchment paper, for which postgraduate students may pay a monetary amount to the Treasury of the University (Research Committee). The amount is determined by the General Assembly of the Department upon recommendation from the Steering Committee or the Director of the MSc program. This amount should cover the expenses of purchasing the parchment and printing it. Upon payment, postgraduate students receive, in addition to the parchment of the MSc, two (2) copies of the MSc. Graduates are also issued an Appendix to the Master's Diploma.