ΕΓΚΡΙΘΗΚΕ (ΣΥΝΕΛΕΥΣΗ ΤΜΗΜΑΤΟΣ …….)

ΔΙΕΘΝΕΣ ΠΑΝΕΠΙΣΤΗΜΙΟ ΤΗΣ ΕΛΛΑΔΟΣ

SCHOOL OF HEALTH SCIENCES

**DEPARTMENT OF BIOMEDICAL SCIENCES**

# STUDY GUIDE

## DEPARTMENT OF BIOMEDICAL SCIENCES

**«THESSALONIKI», 2023**

**EDITING GROUP**

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## FOREWORD (<Welcome Note from the President of the Department >)

Dear students,

Welcome to the Department of Biomedical Sciences of the School of Health Sciences of the International Hellenic University.

The aim of the Department of Biomedical Sciences is to offer a four-year University Studies leading to a Bachelor's Degree in Biomedical Sciences of University Level (Bachelor's Degree - level 6 according to EQF, European Qualifications Framework, Bologna) in accordance with corresponding Biomedical Sciences Departments abroad.

The curriculum of the department is completed in 8 semesters and includes 5 months of compulsory internship in the last semester and 2 months of optional internship during the studies (after the 6th semester). It also includes an optional thesis.

The Biomedical Sciences degree provides students with academic knowledge and skills to perform laboratory methods in diagnostic laboratories for the purpose of diagnosing diseases. As in other countries abroad, students are trained to work in institutions providing services related to their field of study, both in the public and private sectors in laboratories, pharmaceutical industry, research facilities and in education (secondary and tertiary).

The Biomedical Sciences department of IHU has an ongoing interest in multinational cooperation both for student and academics participating in different Erasmus and other international Programs.

At the same time, the Department aims to train students in research way of thinking and practice so that they can be employed in postgraduate and doctoral studies and staff research laboratories after graduation.

The Department has established professional rights (opportunities) as from December 2022 (Law 4999 Official Gazette 225/7-12-2022, article 32). Furthermore, according to Presidential Decree 85/2022 on the determination of qualifications for appointment to public institutions (Qualification List - Classification), graduates of the Biomedical Sciences degree program, are included in the Specialty 3 of Medical Laboratories, Branch 3 of the Biomedical Sciences of Health Sector of University Level Education Category (PE).

Finally, the Department of Biomedical Sciences offers four Postgraduate Programs of Studies, three in Greek and one in English, as well as the possibility of completing a doctoral thesis.

***The President of the Department***

***Maria Chatzidimitriou, MD, Phd***
***Medical Biopathologist***
***Professor of Microbiology and Immunology***

# 1. THE INTERNATIONAL HELLENIC UNIVERSITY

## 1.1 General Information

The International Hellenic University (I.H.U.) based in Thessaloniki, was founded by article 1 of Law 3391/2005 (Aʹ 240) and is organized and operates as a Higher Educational Institution (HEI) in the university sector, in accordance with paragraph 1 and indent a' of paragraph 2, article 1, Law 4485/2017 (Aʹ114).

With Law 4610/2019 (Government Gazette 70/Aʹ/7-5-2019) seven (7) Schools were established therein with corresponding Departments in each of them.

Besides, there is a University Center for International Studies in IHU, based in Thessaloniki , which operates as an academic unit of the institution.

The following Departments are established at the University Center for International Studies:

a) Humanities, Social and Economic Sciences, which is part of the School of Humanities, Social and Economic Sciences.

b) Science and Technology, which is part of the School of Science and Technology

The above Departments are located in different cities of Northern Greece. Most of them are mainly concentrated in four campuses: Thermi (where the University headquarters is also located), Sindos, Serres and Kavala.

## 1.2 Academic and Organizational Structure

According to the current legislation, each University is subdivided into Schools, which cover a set of related scientific disciplines, so that the necessary coordination for the quality of the education provided can be ensured. A School is subdivided into individual Departments which also constitute the basic academic units. The units in question cover the subject of a specific scientific field and award the corresponding degree/diploma. The Schools of the International Hellenic University - with their Departments - are as follows:

| SCHOOLS | DEPARTMENTS |
|---|---|
| **SCHOOL OF ECONOMICS AND BUSINESS ADMINISTRATION (Thessaloniki)** | • Department of Business Administration (Serres)<br>• Department of Economic Sciences (Serres)<br>• Department of Supply Chain Management (Katerini)<br>• Department of Accounting and Finance (Kavala)<br>• Department of Business Administration, Marketing and Tourism (Thessaloniki)<br>• Department of Accounting and Information Systems (Thessaloniki)<br>• Department of Management Science and Technology (Kavala) |

| | |
|---|---|
| **SCHOOL OF SOCIAL SCIENCES (Thessaloniki)** | • Department of Library, Archive and Information Science (Thessaloniki)<br>• Department of Early Childhood Education and Care (Thessaloniki) |
| **SCHOOL OF HEALTH SCIENCES (Thessaloniki)** | • Department of Biomedical Sciences (Thessaloniki)<br>• Department of Nutritional Sciences and Dietetics (Thessaloniki)<br>• Department of Midwifery Science (Thessaloniki)<br>• Department of Physiotherapy (Thessaloniki)<br>• Department of Nursing (Thessaloniki)<br>• Department of Nursing (Didymoteicho Branch) |
| **SCHOOL OF ENGINEERING (Serres)** | • Department of Industrial Engineering and Management (Thessaloniki)<br>• Department of Environmental Engineering (Thessaloniki)<br>• Department of Information Technology and Electronic Engineering (Thessaloniki)<br>• Department of Computer, Informatics and Telecommunications Engineering (Serres)<br>• Department of Surveying and Geoinformatics Engineering (Serres)<br>• Department of Mechanical Engineering (Serres)<br>• Department of Civil Engineering (Serres) |
| **SCHOOL OF DESIGN SCIENCES (Serres)** | • Department of Creative Design and Clothing (Kilkis)<br>• Department of Interior Architecture (Serres) |
| **SCHOOL OF SCIENCES (Kavala)** | • Department of Computer Science (Kavala)<br>• Department of Physics (Kavala)<br>• Department of Chemistry (Kavala) |
| **SCHOOL OF GEOSCIENCES (Drama)** | • Department of Agricultural Biotechnology and Oenology (Drama)<br>• Department of Agriculture (Thessaloniki)<br>• Department of Forestry & Natural Environment (Drama)<br>• Department of Food Science and Technology (Thessaloniki) |
| **SCHOOL OF HUMANITIES SOCIAL SCIENCES AND ECONOMIC STUDIES (Thessaloniki)** | • Department of Humanities Social Sciences and Economic Studies (Thessaloniki) |
| **SCHOOL OF SCIENCE AND TECHNOLOGY (Thessaloniki)** | • Department of Science and Technology (Thessaloniki) |

The administrative bodies of each School are the Deanery and the Dean.

The Deanery of each School consists of:

-the Dean of the School,

- the Presidents of the Departments, and

- representatives of Special Technical Laboratory Staff (E.TE.P.), Special Teaching Laboratory Staff (E.D.I.P.), and students.

The Department is managed by:
- the Department's Assembly
- the Management Board, and
- the President of the Department

The Assembly of the Department is made up of the Educational Staff members of the Department ,the technical staff representatives, undergraduate and postgraduate students.
The Assembly and the President of the Department consist the Bodies of the Departments' (established) directions (Sectors) - where they exist. The Assembly is made up of the Educational Staff members of each course and of student representatives.

### 1.3 The Campus (of the city where the Department is located)

The Alexandrian Campus is located in the municipality of Delta (Sindos area, to the west of the Municipality of Thessaloniki) and hosts a total of 14 of the 32 Departments of Undergraduate Studies of the International University of Greece (DI.PA.E.) which are distributed over 7 Schools and 7 Campuses and spread over 6 cities of Northern Greece (Thessaloniki, Serres, Kavala, Drama, Kilkis, Katerini). https://www.ihu.gr/about

The Alexandrian Campus (https://youtu.be/nYBjex60_aY ), together with the Thermi Campus, that hosts the University Administration and the University Center for International Study Programs, constitute the two University Campuses of the Prefecture of Thessaloniki.

The Department of Biomedical Sciences belongs to the School of Health Sciences together with the Departments of Nutritional Sciences & Dietetics, Midwifery Science, Nursing, Physiotherapy which are also located on the Alexandrian Campus.

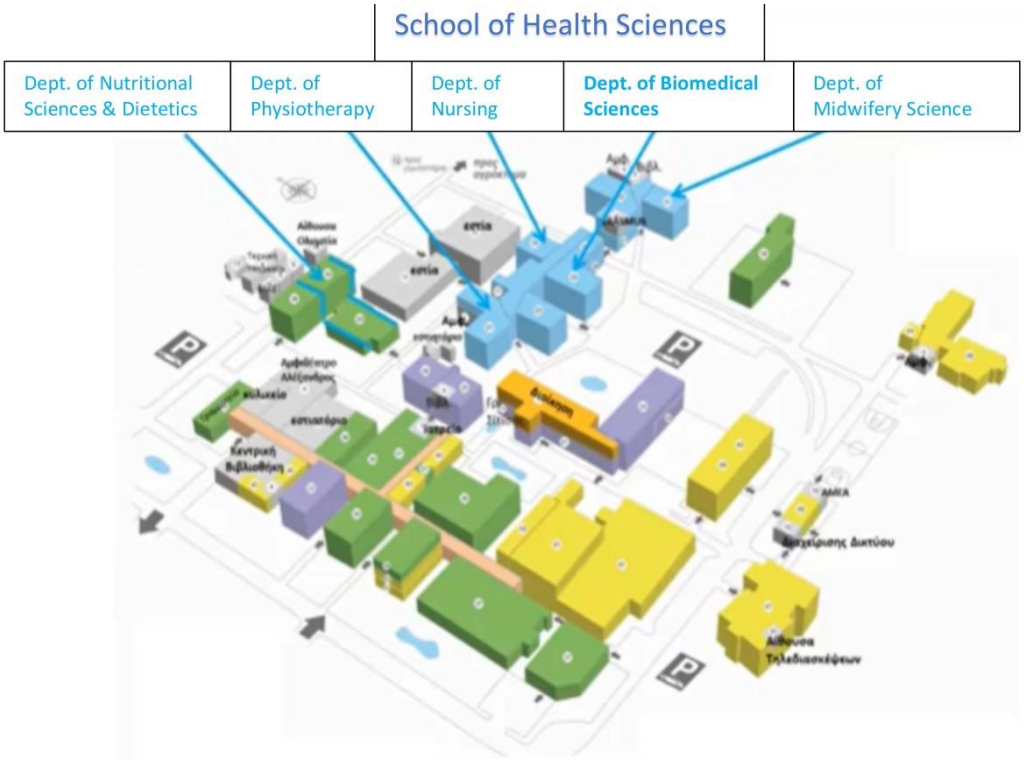


**Figure . Departments of School of Health Sciences – Alexandrian Campus.**

# 2. THE CITY of THESSALONIKI

## 2.1 Geographical and Demographic Information

The Prefecture of Thessaloniki is located in central Macedonia, it streches from the Thermaikos Gulf in the southwest, to the Strymonikos Gulf in the east. In the central-northern part of the prefecture extends the valley of Mygdonia with lake Koroneia and a little further east lake Volvi is found, while it is crossed to the west by the rivers Echedoros (Gallikos) and Axios which flow into the Gulf of Thermaikos, with the Axios estuary to form the Axios delta, a world important ecosystem. Mountainous areas include the Chortiatis in the west-central part, the Vertiskos in the north and parts of the Kerdylio mountains in the northeast.

The Regional Unit of Thessaloniki has approximately 1,100,000 inhabitants and is divided into 14 municipalities. Among them, the municipality of Thessaloniki is the main municipality of the city and the capital of the Prefecture. The municipality of Thermi, which houses the administrative headquarters of I.H.U. is located in the south-east of the municipality of Thessaloniki, while the municipality of Delta with its headquarters in Sindos, which hosts the Alexandrian Campus of I.H.U. it is located in the west.

## 2.2 Historical data

The city of Thessaloniki is built on the bay of Thermaikos with a layout that follows the coast and extends on the hill forming the Ano Polis.

In the area where the city is now located, many settlements were developed, already from the Neolithic and Bronze Age. Settlements from the Iron Age and later times (9th-4th century BC) have also been found. These settlements formed the 26 settlements, the union of which created the city.

Thessaloniki was founded by Kassandros, general of Philippos II, in 316 BC and named after his wife and sister of Alexander the Great, Thessaloniki. The new city was created on the site of ancient Thermi by the merger of neighbouring settlements and experienced significant growth, initially because of its strategic position for the Macedonian state.

During Hellenistic times, the city followed the administrative model of other Greek cities. It was a major commercial centre and was fortified with walls from the 2nd century BC.

The walls of the city began to be built by the King of Macedonia, Kassandros, after the foundation of the city in 315 BC, were reinforced by the Romans and were given their final form in the 4th century AD by the Emperor Theodosius, although they were completed and repaired many times afterwards. The walls were trapezoidal in shape, based on the sea wall, with two vertical arms, east and west, ending in a triangular acropolis. Although large sections have been demolished from time to time in order to expand the city, part of the walls and some of their fortifications survive and dominate mainly in the Upper City. The fortifications of the city include the White Tower, which was built much later, during the Ottoman Empire, on the city's coastal front.

From 168 BC, Polis passed under Roman rule, becoming the capital of the Roman province of Macedonia from 148 BC. As part of the Roman and later the Byzantine Empire, it has a strategic role and is often in a privileged position. In 44 AD it was declared a "Free City". Most of the Roman monuments that survive in the city were built in the 2nd and 3rd centuries AD, such as the Roman Forum (2nd and first third of the 3rd century), above Aristotelous Square, between Olympus and Filippou Streets and the complex of the Rotonda, the Hippodrome, the Triumphal Arch or the Galerius Arch (Kamara). In 324 AD Constantine the Great constructed an artificial harbour and made Thessaloniki the "Regent" of the Empire with Constantinople as its protectorate.

The turbulent history of the city includes rebellions, such as that against the Emperor Theodosius I the Great, Slavic and Bulgarian invasions in the 9th and 10th centuries, occupation and extensive destruction by the Normans and then occupation by the Franks. In 1224 it was liberated by the Greek ruler of Epirus, Theodoros Doukas Komninos, and became the capital of the Despotate for 22 years until its reintegration into the Byzantine Empire, which was reconstituted after the Fourth Crusade. In the 14th century, after the Zealot movement, it became an independent republic. But it was conquered by the Turks and then by the Venetians, to end up under Turkish rule from 1430 AD for 482 years. Towards the end of Ottoman rule, the city and the surrounding area was claimed by Greeks and Bulgarians who formed as part of the Macedonian Struggle, until October 26, 1912 AD, when it was liberated by the Greek army, a protocol of surrender of the city was signed and the modern history of the city began.

An event that severely traumatized the City during its later history was the devastating fire in 1917, which would wipe out the entire centre of the City, leaving 73,000 inhabitants homeless, having lost their homes, shops and property. After the fire, the historic city centre was redesigned on Prime Minister Venizelos' orders by the French architect, urban planner and archaeologist Ernest Hebrard, who tried to give the city a modern city character with Byzantine elements, columns and arches. The designs were spread throughout the centre, but a small part of them was applied to the buildings that line today's Aristotelous Square and Eleftherias Square.

In general, there is an attempt to modernise the city. In 1923, the Thessaloniki International Fair was opened for the first time, which would be upgraded and opened in its current location some 17 years later.

After its liberation, refugees from various regions and from the Greeks of the East began to flock to the city, culminating in 1922, when thousands of refugees from Asia Minor flocked to the city with the signing of the Treaty of Lausanne and the decision to exchange populations. At the same time, the city was emptied of its Ottoman element. The city gradually becomes a mosaic of Greeks who have come from various regions of the former Ottoman Empire, Asia Minor, Pontic and Thracians who initially live in difficult conditions but gradually create settlements expanding the city.

In 1941 the German occupation came. Thousands of Thessaloniki's Jews are transported by train to the Nazi camps and the Jewish community of the city is almost wiped out, while many Jews and Christians are killed in the city itself.

The Thessalonians gradually converted to Christianity from 50 AD when the Apostle Paul preached in the city. To this day, Thessalonians point to the area from which he preached.

In the 3rd century A.D., a time of Christian persecution, St. Demetrius, a Christian and an officer in the Roman army, a member of a prominent noble family of the city, was a Greek Christian martyr. St. Demetrius the Myroblyte is an important symbol of the Christians of the City and is the Patron Saint of Thessaloniki, celebrated on October 26. The church of Agios Dimitrios, built on the site of his imprisonment and martyrdom, is an important pilgrimage site in the city.

Thessaloniki is also the birthplace of Saints Kyrillos and Methodios, who spread Christianity to the Slavs and are considered the inventors of the first Slavic alphabet.

The Thessalonians maintained their faith during the Ottoman occupation, as the post-Byzantine churches that have survived in the city demonstrate.

## 2.3 Useful links of transportation

Thessaloniki map:
https://www.google.com/maps/place/Thessaloniki/@40.6211925,22.9511008,13z/data=!3m1!4b1!4m6!3m5!1s0x14a838fd5a9e1559:0x1e6cde1ac7591bd9!8m2!3d40.6267418!4d22.9594983!16s%2Fg%2F119vlz9_l

Thessaloniki Monuments map:
https://thessaloniki.gr/wp-content/uploads/2019/11/Thessaloniki-Monuments-Map-ENG-Web.pdf

Public transport:
Oasth (public transportation): https://moovitapp.com/index/en/public_transit-lines-Thessaloniki_Θεσσαλονικη-2860-852864

Line 52 bus: https://moovitapp.com/index/en/public_transit-line-52-Thessaloniki_Θεσσαλονικη-2860-852864-676336-0

Thessaloniki airport - Makedonia :
https://www.skg-airport.gr/en
Thessaloniki airport location

## 3. THE DEPARTMENT OF BIOMEDICAL SCIENCES

The Department of Biomedical Sciences, School of Health Sciences of the International University of Greece was established in May 2019 by Law 4610 (Government Gazette 90/Α΄/07-05-2019) “Synergies of Universities and T.E .I., access to higher education, experimental schools, General Archives of the State and other provisions".
In 2019 the Technological and Educational Institute of Thessaloniki (T.E.I.Th.) became part of the International Hellenic University (I.H.U.) and the Dept. of Biomedical Sciences incorporated the former Department of Medical Laboratories of T.E.I.Th, (founded in 1973).
Renaming was deemed necessary to better harmonize the Department’s name with the BIOMEDICAL SCIENCES departments of European Universities, providing graduates with corresponding knowledge, skills and possibilities for vocational and job opportunities.

The scientific field of the Department of Biomedical Sciences is included in field 09 - Health and welfare - based on the International Standard Classification of Education of UNESCO (ISCED 2013).

The mission (aim) of the Department of Biomedical Sciences is the development of Education and Research in Biomedical Sciences, the creation of partnerships with social institutions and stakeholders in the field of Biomedical Sciences and the transmission of knowledge and know-how, providing all levels of education level 6, 7 and 8 according to Bologna.

The Department of Biomedical Sciences:

a) Offers an undergraduate degree in Biomedical Sciences (8 semesters)
b) Offers a "Master's Program in Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases", in co-organization with the Department of Medicine of the Democritus University of Thrace.
c) Offers two Master programs in in co-organization with the Department of Medicine of Aristotle University, entitled:
    - Vaccines and Infectious Diseases
    - Applied Gerontology and Geriatrics
d) A Doctoral Studies Program is in operation
e) Research is carried out on Biomedical Sciences scientific fields and on subjects according to the research interests of faculty members.
f) Furthermore, it seeks to carry out research in active collaboration and assistance of social institutions.

**Figure 1. View of the Department's building - BIOMEDICAL SCIENCES -**

# 4. THE UNDERGRADUATE STUDY PROGRAM

## 4.1 The aims of the Undergraduate Study Program

The Biomedical Sciences Department's Undergraduate Study Program (U.S.P.) aims to offer a four-year University Studies leading to a University Level Biomedical Sciences degree (Bachelor's Degree - level 6 according to EQF, European Qualifications Framework, Bologna) in analogy with corresponding Biomedical Sciences Departments abroad.
**The goal of the Biomedical Sciences Undergraduate Study Program is aligned with the Policy for the Education of Biomedical Scientists (EPBS) and International Society of Biomedical Sciences (IFBLS).** Therefore, it is adapted to the training of Scientists capable of performing all kinds of diagnostic Examinations and serving the Profession of Biomedical Scientist as defined by the Biomedical Sciences Societies.
At the same time, **it is in accordance with the Aims and Objectives of equivalent Departments of Biomedical Sciences abroad**, as can be seen from the content of the curriculum of the Departments and the possibilities of vocational rehabilitation of their graduates.

In particular, the Undergraduate Study Program of the Department aims, in line with corresponding Departments abroad, to provide students with the necessary knowledge, in order to produce graduates of higher education suitably qualified to carry out laboratory medical examinations for the laboratory diagnosis of diseases, having knowledge of the factors that affect the variation of biological markers and the conditions that can affect the accuracy and reliability of their measurements. Qualified graduates able to work in any of the individual fields of their subject and to contribute actively and responsibly to the organization and regulation of the operation of their workplace, to the guidance and supervision of the application of techniques by the lower skilled staff of the workplace, and to the training of such staff. In particular, they can staff the following laboratory departments: microbiological-virological, biochemical, hematological, blood donation-blood bank, immunological-histocompatibility, nuclear medicine to perform radioimmunoassays (RIA), hormonal-endocrinological, toxicological, pathologic, cytological, molecular biology – genetics, experimental animals, or any other laboratory related to their field of study.

In addition, they are trained to be able to contribute to the development of science and technology in their area of expertise. It also provides them with the knowledge to work in any other workplace, based on their field of study, such as biomedical research, medical diagnostics manufacturing companies, research department of pharmaceutical companies, veterinary clinics, marketing of medical diagnostics, education etc. based on the relevant global experience and practice.

The **main Study Program areas include**, among others:
Biochemistry, Biology-Molecular Biology, Biotechnology, Genetics, Clinical Chemistry, Haematology, Immunology, Microbiology, Microbiology, Mycology, Virology, Parasitology, Histology - Medical Cytology, Pathological Anatomy, Pharmacology-Toxicology, Molecular Diagnostics.

The expected knowledge, skills, competences and learning outcomes of the Curriculum are summarised as follows:

**Knowledge**

The knowledge provided includes, the teaching of basic courses such as: Chemistry, Medical Physics, Biochemistry, Biology, Biotechnology, Genetics, General Microbiology, Anatomy, Physiology, etc. which provide the background that will allow the understanding of the physiological functions of the human body and their disorders, as well as the understanding of the operating principle and the correct application of most diagnostic methods that will be taught in the individual courses. It also includes specialization courses, such as courses in Hematology, Clinical Chemistry, special courses in Microbiology, Virology, Immunology, Pathological Anatomy, Cytology, etc., which refer specifically to the various pathological conditions, the changes of various biological markers in biological fluids and tissues, the determination methods and the proper selection and implementation of the methods. Within the specialization courses, students are taught the pathophysiology of diseases and diagnostic methods with emphasis on the principle of diagnostic techniques, their sensitivity and reliability. Finally, specific infrastructure courses are taught such as English terminology, Laboratory Safety, Research Design, Statistics, Informatics, Experimental Animals, etc.

**Skills**

During the Laboratory Practices, students acquire the necessary skills for the practical implementation of the diagnostic techniques they have been taught. They learn the use and control of the required specific equipment with application to the types of devices that constitute the equipment of the Department's laboratories and reference to other types of similar equipment. The ability to apply the knowledge is acquired through the students' Laboratory Practices and their participation in Practical Exercises, which take place in almost all the courses of the Department. As part of the Practical Training, which takes place during the 8th semester of their studies (compulsory) and additionally after the end of the courses of the 6th semester (optional), students have the opportunity to apply their knowledge and skills in real work conditions of all Departments of Hospitals and Diagnostic Centres and in general of their future workplaces, getting to know their organization and the mode of operation, obtaining at the same time significant experience. Students also exercise critical thinking, information gathering and analysis, as well as analytical thinking and practice.

During laboratory courses, students are involved in, handling human biological fluids and secretions, classification, identification and study of pathogenic microorganisms, investigation of agents of pathogenicity and resistance, laboratory diagnosis and contribution to the treatment and prevention of infectious and contagious diseases. In particular, laboratory practice includes the management of clinical biological fluids, microscopy, their culture, bacterial and fungal identifications of isolated bacteria and fungi and their anti therapy.

**Competence**

During their studies, students acquire the ability, to understand in depth the pathophysiology of diseases and their correlation with the biomolecules identified in biological fluids during the application of diagnostic techniques, to have an in-depth understanding of the principle on which diagnostic techniques are based, to understand the factors that may lead to false results and the necessary procedures to prevent or correct them. To understand the differences in diagnostic techniques in relation to the likelihood and the particular circumstances of false results, their suitability for specific population groups and their compatibility with the available equipment

## 4.2 Awarded title and level of qualification

The Department's Study Program ensures its graduates with a four-year Biomedical Sciences degree, 240 ECTS (Bachelor's Degree - level 6 according to the EQF, European Qualifications Framework, Bologna).

## 4.3 Career Prospects for Graduates

**Graduates of the Department of Biomedical Sciences have registered professional rights in accordance with Goverment Law 4999 (Official Gazette 225/7-12-2022, article 32).**

Furthermore, according to Presidential Decree 85/2022 on the determination of qualifications for appointment to public institutions (Qualification List - Classification), graduates of the Biomedical Sciences degree program, are included in the Specialty 3 of Medical Laboratories, Branch 3 of the Biomedical Sciences of Health Sector of University Level Education Category (PE).

Graduates are qualified for employment in institutions providing services related to their field of study, both in public and private sectors. In particular, they can staff the following laboratories: microbiological-virological, biochemical, hematological, blood donation-blood bank, immunological-histocompatibility, nuclear medicine to perform radioimmunoassays (RIA), hormonal-endocrinological, toxicological, pathologic, cytological, molecular biology – genetics, Laboratory animals, or any other laboratory related to their field of study.

More specifically, their responsibilities include the following: a) give instructions to examinees for their appropriate preparation and the correct collection of the sample for each examination, b) take the sample, c) receive the samples presented to the laboratory, d) prepare the samples to be examined, e) prepare all necessary materials, reagents and solutions, f) prepare smears and perform staining techniques, g) prepare and check any type of instrument and machine to be used, h) undertake responsibly the application of all modern scientific methods that have in relation to the performance of the laboratory tests, i) evaluate the quality result (technical know-how) and sign the performance of the technological part of all the laboratory tests they carry out, j) contribute to the laboratory quality-control procedures.

In addition, at the Blood Donation Laboratory - Blood Bank, they instruct prospective blood donors - patients on the proper preparation before blood collection, prepare blood derivatives (PLT, FFP, NEOCELLIS, etc. ), wash the red blood cells (to be transfused), participate in blood group determinations, cross-matching, direct and indirect Coombs, serological determinations for blood-borne diseases and laboratory processes for the prevention of thalassemia.

They also participate in the organisation and management of their workplace, in particular:

A. in laboratory facilities design

B. in the selection of equipment (machines - instruments)

C. selecting the most appropriate laboratory methods

D. member in the committees for the supply of consumables

E. monitoring the quality control of results

F. record keeping

G. Training of laboratory staff

H. research studies of the laboratories

I. supervise the proper, periodic maintenance and cleaning of machinery, instruments and devices and implement the required hygiene and safety rules.

Job opportunities in Greece:

Public Hospitals (Laboratories)
Private Clinics (Laboratories)
Diagnostic Centres (Laboratories)
Police Forensic Laboratory
Pharmaceutical companies (Research & Development Department)
Medical Diagnostics Production Companies
Veterinary Clinics (Laboratories)
Stem cell banks
Research projects
Teaching in Technical Schools
Teaching in Institutes of Vocational Education and Training
Teaching in Higher Education
Medical Visitors

Main Employment Sectors Abroad:

Hospitals & Diagnostic Centres (Laboratories)
Pharmaceutical companies (Research & Development Department)
Medical Diagnostics Manufacturing Companies
Marketing of medical diagnostics
Research Programmes (Universities)
Veterinary clinics
Forensic Laboratories
Military laboratories
Education

# 5. INFORMATION on the CURRICULUM of STUDIES

## 5.1 Duration of Studies

The first cycle of studies in the Department of Biomedical Sciences, School of Health Sciences of the International Hellenic University requires attending an Undergraduate Study Program (USP), which includes courses corresponding to a minimum of **240 credits (ECTS).** It typically lasts four (4) academic years and culminates in the award of a degree. In each academic year, the student chooses educational activities corresponding to 60 credits (ECTS) (Paragr. 2b Article 30 LAW 4009/2011)

The USP studies are conducted with the system of semester courses, the fall semester and the spring semester, each of which comprises 13 weeks of teaching.

The maximum duration of study in a first-cycle study program constists of a minimum duration of eight (8) academic semesters for the award of the degree, increased by four (4) academic semesters. In a study program whose minimum time exceeds eight (8) academic semesters, the maximum duration of study is the minimum study time, increased by six (6) academic semesters. After the completion of the maximum period of study, the Board of Directors of the Department issues an act of deletion (article 76, par. 1, Law 4957/2022).

Students who have not exceeded the upper limit of study may, after applying to the Department Secretariat, interrupt their studies for a period of time that does not exceed two (2) years. The right to interrupt studies may be exercised once or partially for a period of at least one (1) academic semester, but the duration of the interruption may not cumulatively exceed two (2) years, in case it is partially provided. Student status is suspended during the interruption of studies and participation in any educational process is not allowed (article 76, par. 4, Law 4957/2022).

## 5.2 Admission and Registration

Students are those who are registered in the Department of Biomedical Sciences of the I.H.U. after passing the entrance exams to higher education, by transfer or by qualifying exams in accordance with the current regulations .

The registration of newly admitted students takes place at the Department's Secretariat within the time limits defined each time by the Ministerial Decisions.

The passing candidates of the Panhellenic examinations who completed their registration through the electronic application of the Ministry of Education and Culture must carry out the identity check at the Secretariats of their Departments, submitting the following supporting documents

1. Application for registration (printed from the website of the Ministry of Education),
2. Photocopy of identity card (ID),
3. One (1) photo (ID type),

For the remaining categories of new entrants, the required supporting documents are announced on a case-by-case basis

## 5.3 Academic Year Calendar

The academic year starts on September 1 every year and ends on August 31 of the following year. The educational work of every academic year is organized in two semesters, the winter semester and the spring semester, each of which comprises 13 weeks of teaching and one examination period (three weeks of exams). There are courses and workshops for which students are examined with progress tests and/or assignments; in this case, students do not take part in re-sit exams held in September.

For the Department of Biomedical Sciences, the total number of semesters required to complete a course, as specified in the curriculum, is eight (8) semesters.

Winter semester courses start in the last week of September and end in mid-January, followed by the first exam period of the winter semester.

Spring semester courses start in late-February and end at the end of May, followed by the first exam period of the spring semester.

Exact dates are determined by the Executive Committee.
Every semester has two exam periods:

Winter semester courses are examined during the exam period January-February; re-sit exams are held in September.

Spring semester courses are examined during the exam period of June; re-sit exams are held in September.

Every semester, and before the beginning of each exam period, students have the right and obligation to evaluate their courses and instructors, aiming at the improvement of the quality of their studies.

More information is available at the website of the Quality Assurance Unit (MODIP-I.H.U. MODIP - I.H.U./) and the website of their Faculty/School.

HOLIDAYS
Courses or exams are not held in the two months of summer holidays (July and August). Holidays also include:

Christmas Holidays: December 24 to January 7.

January 30: The Three Patron Saints of Education Day

Clean Monday

March 25. The Annunciation / National Anniversary of the 1821 Revolution against the Turkish Rule

Easter Holidays: from Holy Monday to Thomas Sunday

May 1st: Labor Day

Holy Spirit Day: Monday (after Pentecost).

October 28: National celebration

November 17: Students' uprising in the National Technical University of Athens against the junta in 1973

On the feast day of the Patron Saint of the city of Thessaloniki, October 26.

## 5.4 Specific Arrangements for Recognition of previous Studies

Recognition/Accrediation of courses to students who entered by Admission Exams for Graduates

1. Students admitted to the Department may recognise courses which have been proven to have been taught and successfully examined in their home Department at a domestic university, provided that these courses correspond to courses of the Department's curriculum. The total number of recognised courses may not exceed 30% of the total number of courses in the Department's curriculum. The above shall also apply to students who are transferred in accordance with the regulations in force at the time.
2. 2. The recognition of the courses, according to the previous paragraph, is carried out by decision of the Department's Assembly and the students are exempted from the examination of the courses or exercises of the curriculum of the host Department taught in the Department of origin, and may join a different semester from the one of their registration.
3. 3. For this purpose, the student submits an application with the required documents for the courses from which he/she requests to be exempted. In order to join a semester other than the semester of his/her registration, the student must submit a request immediately after his/her registration for all the courses and required supporting documents that justify a change of semester.
4. Students must submit a written application to the Department's Secretariat together with a certificate of academic record, certified by the Secretariat of the Department of origin, accompanied by the syllabus of the courses they have taken and the workshops they have attended. The application and the attached documents are forwarded to the tutor in charge, who recommends to the Department's Assembly the recognition or not of the courses and/or exercises to the applicant student.

## 5.5 Course declaration - Renewal of registration

Each student is expected to register at the Department at the beginning of each semester on the dates set by the Dean's Office of the School and to list and declare the courses of the curriculum he/she wishes to attend and which are taught during the semester (course declaration). In particular, course declarations are carried out approximately from 1 October to 15 November for the winter semester and from 1 March to 15 April for the spring semester, within deadlines set by the Dean's Office of the School. The maximum number of credit units corresponding to the semester courses that each student may register for, per semester, shall not exceed a maximum of thirty (30). This limitation does not apply to the declaration of courses or workshops from previous semesters with a non-qualifying final examination grade of the student, the attendance of which is assessed as being sufficient.

Registration and course declaration procedures are carried out by students electronically through the Institution's information system. The declaration of courses is carried out according to the rules established by a decision of the Department's Assembly. The declaration may not include prerequisite courses for which the prerequisite requirement has not been fulfilled. Both the registration and the declaration of courses of the students in each semester are jointly necessary actions in order for the student to have an active presence at the institution.

Students who have not submitted a course declaration shall not be admitted to the examinations for that semester for those courses and, if they have nevertheless taken them, their performance shall not be graded and, if they have nevertheless been graded, any passing grade they may have received shall not be taken into consideration and shall not be recorded in any examination period. The Department's Assembly shall decide on belated declarations.

For newly enrolled students, the first semester course declaration is submitted together with the application form for their first registration in the Department.

### 5.5.1 Statement of Preference for Placement in Laboratory Classes

The curriculum of the Department of Biomedical Sciences includes theoretical courses (lectures), combined courses including theoretical and laboratory sections, tutorials and a strictly laboratory course.

The laboratory course, as well as the laboratory part of the combined courses, take place in specifically equipped laboratory classrooms, of about 20-30 students, depending on the available laboratory space.

Based on the number of students who have enrolled for the course and on the capacity of the laboratory classroom, the appropriate number of laboratory classes is designated and included in the Department's weekly timetable of teaching.

For each laboratory course, a class selection application is created on the online education platform of asynchronous learning moodle, where students are invited to choose the class they wish to attend on selected dates.

For newly enrolled first semester students, assignment to laboratory classes is made by the Department staff members in charge of the respective Laboratories in alphabetical order.

## 5.6 Academic ID- Student pass

Since 09/24/2012, undergraduate, postgraduate and doctoral students of all Universities in the country can electronically apply for the issuance of their academic identity card

Ηλεκτρονική Υπηρεσία Απόκτησης Ακαδημαϊκής Ταυτότητας - Informational Portal (minedu.gov.gr)

The Academic Identity is strictly personal. The suspension of the student status for any reason, automatically terminates the right to hold the Academic Identity Card, which in this case, should be returned to the Department's Secretariat.

On the academic identity cards of students of the first, second and third cycle of studies who do not already hold a corresponding degree and have not exceeded the maximum duration of study provided by the legislation in force, and of students who study at the University within the framework of international or European educational or research exchange and cooperation programs, for as long as their studies last, the Special Ticket (PASO) is incorporated in order to apply the discounts provided by the legislation on their transportation.

## 5.7 Teaching Aids and Resources

The educational work is supported by the corresponding coursebooks, which are provided free of charge to the students, through the Electronic Integrated Book Management Service (Eudoxus). Students, after submitting the electronic declaration of courses each semester, also make the corresponding declaration of books on the web portal of the "EUDOXUS" system (http://eudoxus.gr/), with which they declare the coursebooks they wish to receive.

In order for a student to be able to declare the textbooks, a username and password are required, which are issued by the Department's Secretariat and are also used for the other electronic services of the Institution. The student enters a central web page of the Central Information System (CIS) from where he/she is authenticated. There he/she is informed about the approved textbooks of the Department's courses and selects the ones he/she is entitled to (one textbook per course he/she has registered). The professor of each course has previously recommended one or more textbooks suitable for the study of the course. Then, the student receives directly from the CIS an SMS and an e-mail with the PIN code, with which he/she receives the selected textbooks either from the Library of the University Campus of Serres or Kavala or Thessaloniki, or from another contracted bookstore that will be indicated to him/her, or by any other procedure that will be qualified by the Ministry of Education and the Eudoxos service (e.g. (e.g. by courier services), on working days and hours, upon presentation of his/her identity card.

Students are eligible for free textbooks until they have completed the minimum number of semesters required for graduation plus four (4) semesters, with the condition that they have not previously obtained a free textbook for the same course.

According to the Institution's Internal Regulations (Issue B' 4889/06.11.2020 Official Gazette 54447), if students select additional elective courses than those required for the degree, the right to select and obtain free textbooks does not extend to the additional courses they selected and examined, even if they are credited to their degree.

## 5.8 Course of Study

The Undergraduate Study Program (USP) of the Department of Biomedical Sciences provides 4 years of study (240 Ects) including theoretical and laboratory education, practical exercises and internship.

The USP of the Department of Biomedical Sciences supports 51 courses of which 41 are compulsory core courses (CC) , 9 are compulsory elective courses (EC) and 1 is optional (OC). The USP includes General Background Courses (GBC), Special Background Courses (SBC), Specialty Courses (SC and General Knowledge Courses (GKC).
The curriculum of the Department of Biomedical Sciences includes theoretical courses (lectures), combined courses including theoretical and laboratory sections, tutorials and a strictly laboratory course.

In order to ensure the smooth attendance of the courses, some of them are designated as prerequisites for the attendance of other courses. This means that both theoretical and

laboratory sections of the prerequisite courses must be successfully completed in order to be able to follow the courses that have these as prerequisites.

**The educational process differentiates according to course type**

Briefly, the education tools may include:
- Face-to-face or distance learning lectures
- Laboratory exercises for the implementation of laboratory and experimental techniques and methods (for courses that have a laboratory section).
- Assignment/presentation of projects by students
- Video, presentations, links and other material presented during the lectures and uploaded to electronic platform moodle.
- Questionnaires/self-examination quizzes

**The educational process** of each course includes:

Theoretical courses

Theoretical courses are not compulsory, but their attendance is considered important for a better comprehension of the subject and for facilitating the student in his/her exams. This also applies to the theoretical part of the combined courses.

Combined courses

Combined courses include theory and a laboratory section (laboratory exercise).

Laboratory Courses

There is one strictly laboratory course that includes only laboratory practice (Blood specimen collection)

Laboratory Courses / Laboratory section of combined courses

Attendance at the laboratory courses or laboratory section of combined courses is compulsory.
These courses include the performance of laboratory exercises with students applying laboratory techniques relevant to the subject of each laboratory and training in the use of relevant laboratory equipment.
Satisfactory attendance of the Laboratory section of a course implies the student's attendance at a minimum of 80% of the Laboratory Exercises and Practice Exercises (if any), implementation of requested laboratory techniques, delivery of a laboratory report or any other assignment assigned by the instructor.
Satisfactory attendance of the laboratory section of the course ensures that students are eligible to attend the final Laboratory Examination.

Tutorials (Practical Exercise)

Attendance at the practical exercises is also compulsory. Tutorials (Practical Exercises) are part of the laboratory section of the course and usually include an analysis of the theoretical background of the laboratory techniques that students will practice in the Lab.
Each Tutorial precede the corresponding laboratory exercises and aim to improve the student's preparation. Tutorials may also be part of a theoretical course. In this case it is intended to provide the student a background in problem solving and introduce the students to computer programs (e.g. Biostatistics) or hardware that can be used in the context of hands-on applications of the course (e.g. Basic Histology & Methods of Study).

**ECTS credits**: Each course of the Department's Curriculum is characterized by a number of credits.

The ECTS credits, which are allocated to each course, are a measure of the workload required to complete the objectives of an Academic Program by each student

**Grade Scale**: Grading is expressed as a numerical scale from zero to ten (0 - 10), and five (5) is the minimum passing mark.

For a combined course to be considered successfully completed, the student must score successfully in both the theoretical and laboratory sections of the course. The marks obtained by the student in each of the two sections are added up to the final grade of the course according to the credits that determine the weighting of the theoretical and laboratory sections of the course. If the student fails in one of the two sections of the blended course, the student shall repeat only that section.

## 5.9 Examinations

1. The exams sessions are held only after the end of the winter and spring semesters during the periods January - February and June - July, for the courses taught in these semesters, respectively. Students are entitled to take examinations in the courses of both (2) semesters before the beginning of the winter semester during the September session.

2. More specifically, the winter semester examinations shall begin one (1) week after the completion of the semester courses, shall last three (3) weeks, and shall normally be followed by one (1) free week before the start of classes for the spring semester. Spring semester examinations shall begin one (1) week after the completion of the semester courses and shall last three (3) weeks.

Each examinee must report to the designated room for the examination no later than fifteen (15) minutes prior to the scheduled start time. In any case, after the distribution of the subjects, each student is not allowed to enter. In exceptional circumstances, and in the judgment of the responsible professor, a student who has arrived late may be allowed to enter, provided that the delay does not exceed thirty (30) minutes and provided that no other student has left the examination. This student is not entitled to additional examination time.

Any changes in the arrangement of examinees within the room or between the rooms used are the responsibility and right of the instructor and supervisors.

The examinee writes his/her details (name, registration number) on the examination paper and the supervisor then identifies him/her on the basis of his/her academic (student) identity card. In case of impersonation, the persons involved will be referred to the Department’s Assembly for disciplinary action.

Before distributing the examination forms, candidates must remove any aids other than those expressly provided for in the examination regulations or authorized by the examiner.

Mobile telephones or any other means of communication must not be used under any circumstances during the examination. They must be switched off. Turning them on is considered an attempt to cheat.

No single student is allowed in the examination room. The supervisors must ensure that at least one additional student remains in the room until the last student has handed in his/her paper.

RE-EVALUATION OF EXAMINATION RESULTS

If a student fails more than three (3) times in a course with grades higher than one (1) and different from each other, he/she may, upon his/her request and the decision of the Dean, be examined by a committee of three professors of the relevant School, who have the same or related subject matter and are appointed by the Dean. The professor in charge of this examination shall be excluded from the committee. The application shall be submitted to the Secretariat of the Dean's Office of the Faculty and notified to the Chair of the Department. In case of failure, the Department Assembly shall decide on the status of further participation in the course examination and on the measures to be taken to ensure the procedure.

## 5.10 Bachelor's Diploma Thesis

Students can select the diploma thesis as an elective course of 10 ECTS credits distributed by 5 ECTS during the 7th and 8th semester. The diploma thesis must be related to the subject of their studies.

Each faculty member of the Department undertakes the supervision of a number of theses.

For each thesis topic, the faculty member who supervises the progress of the topic, guides the students, ensures the provision of the necessary facilities in terms of space and equipment. Furthermore, he/she shall recommend to the President of the Department the distribution of the necessary funds for consumables, etc. Supervision of a thesis may be assigned to full-time faculty members of another Department depending on the requirements of the subject, following decisions of both Departments.

The development of the thesis may be extended beyond the end of the last semester of study, depending on the complexity and requirements of the topic.

The theses are assigned to all students twice a year by decision of the Department’s Assembly. The exact date of notification and application for the assignment is announced by the department's member in charge of theses.

Upon completion of the thesis and after approval by the supervisor, the thesis is submitted through the protocol to the Department. The Department's Assembly shall set a date on which the theses shall be presented before a three-member committee of the Department's teaching staff. All Department members and students of the Department may attend this presentation.

## 5.11 Work placement (internship)

According to the Curriculum, the Practical Training / Clinical-Laboratory Training of students is mandatory.

The purpose of the students' internship is to train them within the field of knowledge of the department they are attending.

The Practical Training/Clinical-Laboratory Training includes the training in departments of hospitals or diagnostic centers, clinics and generally in places of their discipline in Greece or abroad. Part of the Internship/Clinical-Laboratory Training may also be carried out in research laboratories of a similar discipline.

During the Internship/Clinical-Laboratory Training in departments of hospitals or diagnostic centers, students should be trained in different fields and become familiar with basic technical tests performed in each field. These areas may be biochemical, haematological, microbiological, histopathology, cytology, molecular diagnostics, serological-immunological, blood donation. In addition, during their practical training, students must carry out a sufficient number of blood collections.

The compulsory traineeship corresponds to 5 months of five-day work and is carried out in either public or private sector. The number of hours of practical training per day is set at 6 in order to allow students to take elective courses during the 13 weeks of the semester. Compulsory practical/clinical laboratory training takes place during the last semester of studies (8th semester) and only if the student has successfully completed 2/3 of the courses of the curriculum and corresponds to 20 ECTS. He/she must also have a satisfactory attendance of the laboratory section in all courses that have a laboratory section

In addition to the Compulsory Practical Training, students may carry out a two (2) months Optional Practical Training/Clinical Laboratory Training of 320 hours after the completion of the courses of the 6th semester, during the summer months, 8 hours x 5 days x 8 weeks or equivalent, corresponding to 15 ECTS.

Furthermore, internships can be carried out in European Union Educational Institutions, hospital and research centers, within the framework of the ERASMUS program or other European programs.

## 5.12 Degree Grade - Declaration of Graduation

Students complete their studies and are awarded a Degree when they have completed 8 semesters of study, have successfully completed the courses prescribed by the curriculum and have acquired the necessary 240 credits.

Students of the Department who successfully complete their studies are awarded a "Degree".

The student becomes a graduate on completion of his/her studies even before he/she is awarded the diploma.

A prerequisite for the award of the degree is the swearing in of the graduate/graduate in a public ceremony. In cases where attendance is not possible, the swearing-in ceremony is carried out in accordance with a procedure determined by the Rector. A certificate of successful completion of studies may be issued before the swearing-in ceremony.

The degree certifies the successful completion of the student's studies and indicates the final grade with an accuracy of two decimal places. This grade is in order of success: "Excellent" from 8.50 to 10, "Very Good" from 6.50 to 8.49 and "Good" from 5 to 6.49.

The diploma degree is awarded, as defined by the regulations in force, provided that the student has successfully completed the requirements of the program of study and has acquired the required number of credits for the degree or diploma. If the student has passed more than the minimum number of courses necessary for the calculation of the degree or diploma grade, the remaining courses are indicated on the student's transcript of records and Diploma Supplement, with their grade and credit hours, but the grade of these courses shall not be taken into account for the calculation of the final degree or diploma grade.

## 5.13 Graduate Certificate - Transcript of Records –Diploma Supplement

Upon completion of their studies, graduates receive a Graduation Certificate.

Graduates are awarded a Diploma, Analytical Score (Transcript of records) and a Diploma Supplement.

# 6. STAFF OF THE DEPARTMENT

## 6.1 The Staff of the Department

The staff of the Department of Biological Sciences is divided into Teaching and Educational Staff (D.E.P.), Special Technical Scientific Staff (E.DI.P.), Laboratory Teaching Staff (E.TE.P.) and Administrative Staff (A.S.) with corresponding responsibilities.
The Department of Biological Sciences is staffed with 13 (D.E.P.) School members, 1 (E.DI.P.) members, 0 (E.TE.P.) members and 4 Administrative staff.
The members of the Teaching and Educational Staff belong to four academic ranks : Professors, Associate Professors, Assistant Professors and Lecturers, while their teaching work is supported by the members of Laboratory Teaching Staff and Special Technical Scientific Staff At the same time, the educational process of the Department is also supported by temporary educational staff, which consists of Scientific Associates, Laboratory Associates and Academic Scholars.

**TABLE of the EDUCATIONAL STAFF**

| A/A | FULL NAME | TITLE | SUBJECT AREA/ SPECIALTY |
|---|---|---|---|
| 1. | Skepastianos Petros | Professor | Microbiology - Hematology<br><br>MD with Specialization in Medical Biopathology - Clinical Microbiology<br>Doctor of Medicine (Medical Microbiology) / Specialty in Medical Biopathology - Clinical Microbiology |
| 2. | Karapantsos Elias | Professor | Human anatomy with specialization in the anatomy of the head and the cervical sensory organs<br><br>MD with Specialization in Emergency Medicine and Otolaryngology/ Specialty in Anatomy |
| 3. | Mitka Stella | Professor | Clinical Chemistry - Medical Microbiology.<br><br>MD with Specialization in Medical Biopathology - Clinical Microbiology<br>/ Specialty Medical Biopathology – (Microbiology) |
| 4. | Eleftheriou Phaedra | Professor | Biochemistry<br>Chemist, PhD in Chemistry<br>/ Specialty Clinical Chemistry - Biochemistry |
| 5. | Chatzidimitriou Maria | Professor | Medical Biopathology - Medical Microbiology - Medical Immunology<br>MD, PhD, with Specialization in Medical Biopathology, Professor of Microbiology and |

| | | | |
|---|---|---|---|
| | | | Immunology |
| 6. | Makri Stella | Associate Professor | Chemistry - Clinical Chemistry<br><br>MD with Specialization in Medical Cytology |
| 7. | Papoutsi Androniki | Associate Professor | Biology - Genetics<br><br>Biologist, Doctor of Medicine |
| 8. | Papaliagas Vasileios | Associate Professor | Functional Physiology<br><br>MD/MSc, PhD, Neurologist / Specialty in Neurology |
| 9. | Lymberaki Eugenia | Assistant Professor | Chemistry - Clinical Chemistry<br><br>Chemist, Doctor of Medicine in the field of Biochemistry / Specialty in Chemistry - |
| 10. | Konstantinidou Vassiliki | Assistant Professor | Medical Biopathology - Laboratory Hematology - Clinical Chemistry<br><br>MD with Specialty Medical Biopathology - Clinical Microbiology.<br>Doctor of Medicine (Haematology) |
| 11. | Giannakou Ourania | Assistant Professor | Freshwater Benthic Ecology<br><br>Biologist, Dr. Vet. Medicine |
| 12. | Bobos Matthew | Assistant Professor | Medical Pathological Anatomy<br><br>MD with Specialization in Pathological Anatomy. |
| 13. | Andreadou Eleni | Assistant Professor | Chemistry - Biochemistry - Clinical Chemistry<br><br>Chemist, PhD in Chemistry in the field of Biochemistry |

| **TABLE of the Special Technical Laboratory Staff (E.TE.P.), Special Teaching Laboratory Staff (E.D.I.P.)** | | | |
|---|---|---|---|
| **A/A** | **FULL NAME** | **CATEGORY** | **SUBJECT AREA/ SPECIALTY** |
| 1. | Psycha Anastasia | Special Technical Scientific Staff | MSc "Care of Diabetes Mellitus" |

| TABLE of the ADMINISTRATIVE STAFF | | |
|---|---|---|
| **A/A** | **FULL NAME** | |
| 1) | Katsarou Athina | Head of the Secretariat |
| 2) | Kyriakoudi Ioanna | Secretary |
| 3) | Mayridou Maria | Medical Laboratory Technologist<br>MSc "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" |
| 4) | Hatzifotiou Maria | Secretary |

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akatsar@admin.teithe.gr,
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## 6.2 Administration/Secretariat Office: Duties and working hours

The Department Secretariat is responsible for student and administrative matters.

Student services are provided on all working days, and during the hours of 10.00 am to 12.00 pm, at the offices of the Department Secretariat, located at the entrance of the building housing the Department.

Student issues include:

- Registration Procedures
- keeping the students' records, which include their grades, registration renewals every semester, and information about scholarships,
- granting Certificates and Degrees,
- granting certificates for legal use,
- issuing paper forms required for the students' Internship,
- creating/filling in student lists, according to their course enrolment declaration

- registration cancellations of students who have two consecutive non-renewal of registration or three non-consecutive non-renewal of registration

Regarding first-year student registrations, transfers and registration of those passing the qualifying exams in the Department of Biomedical Sciences of the I.H.U., the following apply:

Registration Renewals - Course Declarations are carried out through the Electronic Secretariat at the beginning of each Semester, and for a period of approximately fifteen (15) days. Each student has his/her own personal code, obtained from the Department's Secretariat, with which s/he declares courses electronically.
After the lists of successful candidates in the National Examinations are sent by the Ministry of Education and Religious Affairs, the registration deadline for new entrants is set, which is common for all higher education institutions in our the country. This deadline should not be missed, otherwise latecomers lose the right to register. Registration of new entrants takes place in September.
From November 1 to 15, relevant application forms are submitted for:
- Transfers for financial, social, health reasons, etc., as well as for the children of large families, unless otherwise specified by law.
- Enrolment of Higher Education Graduates, who succeeded in qualifying exams, held every year, at the beginning of December.

## 6.3 The Role of the Academic Advisor(Tutor)

The institution of the Academic Advisor (Tutor ) has been implemented by the Department of Biomedical Sciences for a long time. Each year, by decision of the Department, a member of the Teaching and Educational Staff is designated an academic advisor for every first-year student for information and guidance in study matters. The academic advisor informs the students about his/her role and invites them to an introductory meeting. Students are required and encouraged to communicate regularly with their Academic Advisor,discuss educational issues and utilize his/her knowledge and experience throughout all the years of their studies.

## 6.4 Evaluation of the Educational Project

1. All registered students of the International Hellenic University participate in the evaluation process of the International Hellenic University. The evaluation is carried out in accordance with the guidelines, procedures and standards of the University's Quality Assurance Unit (Quality Assurance Unit), which follow the standards of the National Authority for Higher Education. Students participate in the Internal Evaluation of the Department and the Institution, a periodically recurring process, through specific questionnaires, which provide them with the opportunity to express their views anonymously. The completion of these confidential questionnaires is very important, as it gathers useful information about courses, lecturers and infrastructure, which is used exclusively for the planning, development and continuous improvement of the overall educational work and services offered to students.
2. Students who have registered for undergraduate, laboratory and postgraduate courses have the possibility of completing questionnaires for these courses. The electronic completion of the questionnaires is carried out through the electronic secretariat of the single information system of the institution.

# 7. FACILITIES

## 7.1 Laboratory Spaces and Equipment

Laboratories: 9

Research facilities: 8 (Total: 186 m2, 35 workstations)

Computer Node: 1 (shared with Dept. of Nursing)

Computer Classroom (20 seats, School of Health Sciences)

Research Laboratory areas

**1.** Biochemistry - Clinical Chemistry - Clinical Chemistry - Virology - Molecular Diagnostics research laboratory area of 50 m² with 6 workstations (room O12B) on the 1st floor

**2.** Biochemistry 1 research laboratory area of 12 m2 with 2 workstations (room O15) on the 1st floor

**3.** Biochemistry 2 research laboratory area, of 12 m² with 2 workstations (room O16) on the 1st floor

**4.** Medical Biotechnology - Genetics - Molecular Diagnostics research laboratory area, of 40 m² with 8 workstations (room O11 on the 1st floor)

**5.** Research laboratory for Medical Cytopathology, Classical and Molecular Medical Histopathology - Cytopathology, 20 m², with 2 workstations (room O14B on the 1st floor)

**6.** Microbiology II - Immunology research laboratory area, of 20 m², with 2 workstations (room O21B on the 1st floor)

**7.** Classical and Molecular Mycology - Parasitology and Medical Microbiology I research laboratory area, of 80 m², with 12 workstations (room I7, on the ground floor)

**8.** Hematology - Thrombophilia research area, of 20 m² with 1 workstation (room I6, on the ground floor).

Research Laboratory Equipment

a) Research laboratory areas **1,2** and **3 (**Biochemistry - Clinical Chemistry - Clinical Chemistry - Virology - Molecular Diagnostics), feature instrumentation for the performance of spectroscopic techniques (photometric, fluorimetric and chemiluminescence), immunological techniques (ELISA, EIA), chromatographic techniques, electrophoretic techniques, PCR and DNA analysis techniques, cell culture and tissue culture.

Detailed recording listed:

Stirring devices:- vortex type stirrers, - magnetic stirrers - mechanical stirrers with propeller,

Homogenizing - Extraction apparatus: - potter-type homogenizer with teflon piston, - homogenizer with knives

Heating devices: - Heating eyes, - Heated magnetic stirrers, - Water baths - Heated plate for heating and cooling of microtubes.

Centrifuge devices: - Simple and refrigerated desktop centrifuges with heads selection (2), - swing-out head centrifuges (1), - ultra-centrifuge.

Electrophoresis devices: - Horizontal electrophoresis devices (2), - Vertical electrophoresis devices (2), - Two-dimensional electrophoresis devices (2), - Western blot electrophoresis apparatus (1), - Sequencing gel electrophoresis. Densitometer for quantification of electrophoresis results - HPLC Chromatography apparatus

Photometers: - photometer (1) - photometers for measuring ELISA microtitration plates (1) - photometer suitable for measuring ELISA microtitration plates, capable of using fluorescence and chemiluminescence (1) - a pH meter

DNA analysis devices: - DNA polymerase chain reaction (PCR cycle) apparatus (2),- UV plate - a chamber with visible and UV plate and an adapted camera for observing and photographing gels,

Incubation chambers: - Simple incubator, shaking incubator, CO2 incubator

Dehydration - condensation devices: - Vacuum gel dessication apparatus, - Lyophilisation device.

Autoclave (2)

- Electronic precision scales (2)- Inverted microscope- Electronic precision scales (2)- Vertical laminar flow cabinet, class II (2) - fume hood (1)- Coolers (4-6 oC) (2), - freezers (4-6 °C) (2), - Distillation apparatus- Reverse osmosis apparatus.

There are also micro instruments such as:

- Volume adjustable micropipettes, different kinds of small instruments, such as: separating funnels, volumetric funnels, siphons, spherical and conical flasks, volumetric flasks and cylinders, test tubes, beakers of various sizes.

b) Research laboratory area **4 (**Medical Biotechnology - Genetics - Molecular Diagnostics)**,** features instrumentation for the performance of molecular diagnostic, genetics and biotechnology techniques.

Detailed recording listed:

Deep freeze freezer -70o C

- Refrigerator with freezer -20o C

- Freezer -20o C, small size

- Liquid sterilization chamber (121o C, 1 Atm), adjustable, with electronic control

- Dry Incubator 30-100o C

- Biological safety chamber Class II (Laminar Flow)

- PCR reaction preparation chamber (PCR Working Station)

- Thermocycler with 25 positions for 0.2 ml/0.5 ml tubes (Eppendorf)

- Benchtop UV transilluminator

- Microcentrifuge 24 positions for Eppendorf tubes, max speed 20000xg (2)

- 12-position centrifuge for blood tubes, max speed 6000 rpm

- Shaking water bath with electronic control, ambient-100o C

- UV-Visible spectrophotometer

- Image processing and analysis system for agarose gel, with corresponding software and thermographic printer.

- Water Distillation System

- Water deionisation system (zalion column)

- Heated magnetic stirrer

- Microwave oven

- Dry heating bench with double head for 0,5/1,5 ml tubes (Heat-block)

- Electrophoresis power supplies (2)

- Horizontal electrophoresis devices (1 maxi, 3 midi, 1 mini)

- 2 vertical electrophoresis devices

- 1 optical microscope

- 1 Southern blotting apparatus

- 1 vortex/spin in one device, max speed 6000 rpm

- 2 vortexes max speed 2500 rpm

There are also micro instruments such as: 22 Single-channel, adjustable volume microprocessors with variable volume suction range, - Necessary micro-equipment and consumables for all molecular biology and molecular genetics testing procedures (stands, tubes, tips, etc.)

- Slide projector and adjustable display screen

c) Research laboratory area **5** (Medical Cytopathology, Classical and Molecular Medical Histopathology – Cytopathology) features instrumentation for the performance of the respective techniques.

   Detailed recording listed:

   - fume hood - Sterilization oven (1) - Microwave (1)- Microtome (1) - Freezing Microtome (1) - Water Bath (1) - Histokinette (1) - Spin tissue processors (2) - Centrifuge (1) - Cytophygocentre (1) - Tissue/immunostaining machine (1) - Liquid Phase Automated Cytology Machine (TriPath/USA) (1) - Thermocycler for slides (in situ PCR)

   - Optical microscope (1) - Nikon optical microscope with DS-Fi1-L2 digital video camera (1) - Observational optical microscope (1) - Refrigerator (1)

d) Research laboratory area **6 (** Microbiology II – Immunology) features instrumentation for the performance of the respective techniques.

Detailed recording listed:

- Liquid sterilization bath (autoclave) (1) - dry heat sterilization oven (1) - Air-borne incubator (3) - Water bath (1) - Precision scale (1) - Water distillation apparatus

- Refrigerators (3) - Centrifuge (1) - Microscopes ( optical and fluorescent)- Projector (1) – Computer – Nebulizer (1).

e) Research laboratory area **7 (** Classical and Molecular Mycology - Parasitology and Medical Microbiology I) features instrumentation for the performance of the respective techniques.

Detailed recording listed:

Dry heat Incubator (1) - CO2 incubator (1) - Heat-cooled chamber (1) - Liquid sterilisation oven (autoclave) (1) - Microscopes (2)

f) Research laboratory area **8 (** Hematology - Thrombophilia) features instrumentation for the performance of the respective techniques.

Detailed recording listed:

Microscopes (20), Co-observational microscopes (3), Camera operated microscope with computer link and projection screen (1), Benchtop centrifuge (1), Electrophoresis apparatus (1), Haematological analyzer (1), Blood collection chair (1), Template (1).

## 7.2 Teaching Classrooms

Department's classrooms: 2 (2x40 = 80 persons)

Infrastructure of The School Of Health Sciences (SHS) - I.H.U.

(Available for part-time use for the teaching needs of the Department)

Common use auditoriums serving the Department: 5

(Of these, one belongs to the School of Health Sciences and the other 4 to the I.H.U.)

-Oikonomou Auditorium (100 seats, SHS)

-Conference hall (150 seats, Conference Centre, SHS)

-Filippos Auditorium/Lecture Hall (150 seats, I.H.U.)

-Olympia Auditorium/Lecture Hall (150 seats, I.H.U)

-Alexandros Auditorium/Lecture Hall (500 seats, Foundation)

Student Training Laboratories

1. Haematology Laboratory (75 sq.m., 25 workstations)
2. Microbiology Laboratory (75 m², 25 workstations)
3. Mycology - Parasitology Laboratory (75 m², 25 workstations)
4. Chemistry - Biochemistry- Virology - Laboratory (50 m², 20 workstations)
5. Biology-Molecular Biology-Biotechnology-Genetics Laboratory (75 m2 , 25 workstations)
6. Immunology Laboratory (75 m2 , 25 workstations)
7. Clinical Chemistry Laboratory (50 m2 , 16 workstations)
8. Medical Cytology-Pathological Anatomy Laboratory (75 m2 , 25 workstations)

## 7.3 E-Learning

The web-based learning environment of the Department of Biomedical Sciences, School of Health Sciences, IHU, is located at the following URL:

Platform for Asynchronous Education

## 7.4 Institutional Research Laboratories

The Department has an established **Laboratory of Biomedical and Molecular Diagnostics and Research** (Government Gazette 4239, 30-09-2020).

The aim of establishing and operating the Biomedical and Molecular Diagnostics and Research Laboratory is:

1. To develop and promote research at the IHU.

2. To develop and promote collaboration among faculty members who have related research interests.

3. The creation of robust and sustainable research hubs.

4. The gathering of experience and expertise.

5. The support of the evaluation processes and quality upgrading of education provided at the Department of Biomedical Sciences, School of Health Sciences, IHU.

The Laboratory's fields of interest are summarized below:

- ✓ Promoting Science on the Discipline subjects of : Embryology, Basic and Systemic Histology, Physiology, Anatomy, Chemistry, Biochemistry, Molecular Biology, Genetics, Biotechnology, Clinical Chemistry, Immunology, Virology, Microbiology, Medical Mycology, Medical Parasitology, Medical Cytology, Medical Histopathology, Haematology.

- ✓ Supporting research implementation in order to fulfill the Department's research demands.
- ✓ Supporting research implementation in order to fulfill the educational demands of the following disciplines: embryology, basic and systematic histology, physiology, anatomy, anatomy, chemistry, biochemistry, molecular biology, genetics, biotechnology, Clinical Chemistry, Immunology, Immunology, Virology, Microbiology, Medical Mycology, Medical Mycology, Medical Parasitology, Medical Cytology, Medical Histopathology, Haematology of the Department of Biomedical Sciences, School of Health Sciences of the IHU.
- ✓ Dissemination of the knowledge generated, support for undergraduate/postgraduate/doctoral theses and facilitation of internships through cooperation with various institutions.
- ✓ Promoting cooperation with other academic institutions and research centers in Greece and abroad, which have corresponding or complementary interests.
- ✓ Promoting cooperation with public organizations or private companies for the implementation of the research outcomes, in collaboration with the Research Committee and the IHU Special Account for Research.
- ✓ Publishing the results and progress of the research activities in National and International Conferences and in peer reviewed scientific journals.

# 8. THE UNDERGRADUATE STUDY PROGRAM

**PRESENTATION OF THE UNDERGRADUATE STUDIES PROGRAM**

**The Undergraduate Studies Program of the Department of Biomedical Sciences, summary tables with duration, courses, course classification (compulsory, core, general background, elective, specialty), hours of theory, practical exercises, laboratories, credit units, ECTS, is presented.**

**Table I. Summary of the Undergraduate Study Program of the Department of Biological Sciences**

| Semester | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
| Biology-Molecular Biology (CC) | Biochemistry II Macromolecules Metabolism - Disorders) (CC) | Bioethics (CC) | Human Physiology (CC) | Medical Biotechnology (CC) | Medical Virology (CC) | Immunology II (CC) | Molecular Diagnostics (CE) |
| Chemistry (CC) | Human Genetics (CC) | Information Technology Applications in Biomedical Sciences (CC) | Medical Microbiology I (Identification of Bacteria) (CC) | Medical Microbiology II (CC) | Immunology I (CC) | Clinical Chemistry IV (Laboratory Endocrinology and Special Biochemical Tests) (CC) | Preventive Medicine (CE) |
| Laboratory animals (CC) | General Microbiology (CC) | English Medical Terminology (CC) | Clinical Chemistry I (Urine and body fluid analyses) (CC) | Clinical Chemistry II (Diagnostic Enzymology - Clinical Biochemistry of Electrolytes) (CC)) | Clinical Biochemistry of Metabolic and Degenerative Diseases (Clinical Chemistry III) (CC) | Medical Parasitology (CC) | Mechanisms and biochemical markers of ageing-disease and chronic diseases (CE) |
| Health and Laboratory Safety in Biomedical Sciences - First Aid (CC) | Human Anatomy (CC) | Blood Drawing Techniques (CC) | Hemopoiesis - Blood Physiology (Hematology I) (CC) | Anemias - Blood Transfusion (Hematology II) (CC) | Hematological Malignancies - Hemostasis (Hematology III) (CC) | Hygiene (CC) | Human microbiome (CE) |
| Biochemistry I (Structure & Function of Biomolecules) (CC) | Nuclear Medicine Physics (CC) | Nutrient Substrates (CC) | Biostatistics (CC) | Medical Cytology (CC) | Medical Mycology (CC) | Clinical Microbiology (CE) | Forensic & Forensic Techniques - Forensic Laboratory |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | Techniques (CE) |
| Basic Histology and Methods of Study - General Embryology (CC) | | Professional Ethics / Employment rights (CC) | Research Design (CC) | | Laboratory Medical Cytology (CC) | Pharmacology-Toxicology (CE) | Diploma Thesis (Bachelor's Thesis) * (EC) |
| | | General (Basic) Pathology (CC) | Systemic Pathology (CC) | | Practical Training, I, (2months) (OC) | Quality control / Organization in Diagnostic Laboratories (CE) | Practical Training II / Clinical-Laboratory Training (5 months) (CC) |
| | | | | | | *Diploma Thesis (Bachelor's degree) (CE) | |

| **Compulsory Courses (CC)** | **Compulsory Elective courses (CE)** | **Optional courses (OC)** | **Total Courses** |
|---|---|---|---|
| **41** | **9** | **1** | **51** |

*General background* Course :GBC
*Special background Course:* SBC
*Specialty Course*:SC
*General knowledge Course*: GKC

**CC: Compulsory, CE: Compulsory elective, OC: optional**

**Table II. The Undergraduate Study Program of the Department of Biological Sciences per Semester**

**1st Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-1901011(TH) 285-1901012(L) | Biology-Molecular Biology | GBC (CC) | 3 | | 2 | 5 | 210 | 7 |
| 2 | 285-1901021(TH) 285-1901022(L) | Chemistry | GBC (CC) | 3 | | 2 | 5 | 180 | 6 |
| 3 | 285-190103 | Laboratory animals | SBC (CC) | 2 | | | 2 | 60 | 2 |
| 4 | 285-190104 | Health and Laboratory Safety in Biomedical Sciences - First Aid | GKC (CC) | 2 | | | 2 | 90 | 3 |
| 5 | 285-1901051(TH) 285-1901052(L) | Biochemistry I (Structure & Function of Biomolecules) | GBC (CC) | 3 | 1 | 1 | 5 | 210 | 7 |
| 6 | 285-1901061(TH) 285-1901062(L) | Basic Histology & Study Methods - General Embryology | SBC (CC) | 2 | 1 | | 3 | 150 | 5 |

**ANNOTATIONS**
**TH**: Hours of Theory,
**TU**: Tutorial / Practical Exercises,
**L:** Laboratory Exercise
**WL**: Workload for the whole academic semester

**GBC:** General Background Course
**SBC:** Special Background Course
**SC:** Specialty Course
**GKC**: General Knowledge Course

**CC**: Compulsory course
**CE**: Compulsory Elective Course
**OC**: Optional Course

**ECTS**: Credit Units (equal to European ECTS credit)

**2nd Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-1902011(TH) 285-1902012(L) | Biochemistry II (Macromolecules Metabolism - Disorders) | GBC (CC) | 3 | 1 | 2 | 6 | 210 | 7 |
| 2 | 285-1902021(TH) 285-1902022(L) | Human Genetics | SBC (CC) | 3 | 1 | 2 | 6 | 210 | 7 |
| 3 | 285-1902031(TH) 285-1902032(L) | General Microbiology | SBC (CC | 3 | 1 | 2 | 6 | 210 | 7 |
| 4 | 285-190204 | Human Anatomy | GBC (CC) | 3 | | | 3 | 150 | 5 |
| 5 | 285-190205 | Nuclear Medicine Physics | GBC (CC | 2 | | | 2 | 120 | 4 |

**3rd Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-190301 | Bioethics | GKC (CC) | 2 | | | 2 | 60 | 2 |
| 2 | 285-190302 | Information Technology Applications in Biomedical Sciences | GKC (CC) | 4 | | | 4 | 120 | 4 |
| 3 | 285190303 | English Medical Terminology | GBC (CC) | 2 | | | 2 | 120 | 4 |
| 4 | 285190304 | Blood Drawing Techniques | SBC (CC) | | | 3 | 3 | 120 | 4 |
| 5 | 285-1903051(I) 285-1903052(L) | Nutrient Substrates | SBC (CC) | 3 | 1 | 1 | 5 | 210 | 7 |
| 6 | 285-190306 | Professional Ethics / Employment Rights | GKC (CC) | 2 | | | 2 | 60 | 2 |
| 7 | 285-1903071(TH) 285-1903072(L) | General Pathology | SC (CC) | 3 | | 2 | 5 | 210 | 7 |

**4th Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-190401 | Human Physiology | GBC (CC) | 3 | | | 3 | 90 | 3 |
| 2 | 285-1904021(TH) 285-1904022(L) | Medical Microbiology I (Identification of Bacteria) | SC (CC) | 3 | 1 | 2 | 6 | 180 | 6 |
| 3 | 285-1904031(TH) 285-1904032(L) | Clinical Chemistry I (Urine and body fluid analyses) | SC (CC) | 3 | | 2 | 5 | 150 | 5 |
| 4 | 285-1904041 (TH) 285-1904042 (L) | Hemopoiesis – Blood Physiology (Hematology I) | SC (CC) | 3 | | 2 | 5 | 180 | 6 |
| 5 | 285-1904051 (TH) 285-1904052 (L) | Biostatistics | SBC (CC) | 1 | | | 2 | 60 | 2 |
| 6 | 285-190406 | Research design | GBC (CC) | 2 | | | 2 | 60 | 2 |
| 7 | 285-1904071 (TH) 285-1904072 (L) | Systemic Pathology | SC (CC) | 3 | 1 | 2 | 6 | 180 | 6 |

**5th Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-1905011 (TH) 285-1905012 (L) | Medical Biotechnology | SC (CC) | 3 | 1 | 2 | 6 | 210 | 7 |
| 2 | 285-1905021 (TH) 285-1905022 (L) | Medical Microbiology II (Cultures of biological-body fluids and secretions - food - water) | SC (CC) | 3 | 1 | 2 | 6 | 210 | 7 |
| 3 | 285-1905031 (TH) 285-1905032 (L) | Clinical Chemistry II - (Diagnostic Enzymology - Clinical Biochemistry of Electrolytes) | SC (CC) | 2 | | 2 | 4 | 180 | 6 |
| 4 | 285-1905041 (TH) 285-1905042 (L) | Hematology II – (Anemias - Blood Transfusion) | SC (CC) | 3 | | 2 | 5 | 180 | 6 |
| 5 | 285-190505 | Medical Cytology | SC (CC) | 3 | | | 3 | 120 | 4 |

**6th Semester**

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-1906011 (TH) 285-1906012 (L) | Medical Virology | SC (CC) | 3 | 1 | 2 | | 180 | 6 |
| 2 | 285-1906021 (TH) 285-1906022 (L) | Immunology I | SC (CC) | 3 | | 2 | | 150 | 5 |
| 3 | 285-1906031 (TH) 285-1906032 (L) | Clinical Biochemistry of Metabolic and Degenerative Diseases (Clinical Chemistry III) | SC (CC) | 3 | | 2 | | 15 | 5 |
| 4 | 285-1906041 (TH) 285-1906042 (L) | Hematological Malignancies - Hemostasis (Hematology III) | SC (CC) | 3 | | 2 | | 180 | 6 |
| 5 | 285-1906051 (TH) 285-1906052 (L) | Medical Mycology | SC (CC) | 2 | | 2 | | 150 | 5 |
| 6 | 285-190606 | Laboratory Medical Cytology | SC (CC) | | | 2 | | 90 | 5 |
| 7 | | Practical Training, I/Clinical-Laboratory Training: 320 hours after the end of 6th semester (8 hours x 5 days x 8 weeks = 320 hours =2months, during the summer months or equivalent) * | SC (OC) | | | | | 320 | 15 |

* According to the Internal Regulations of the I.H.U., the Work Load (WL) and ECTS of Optional Courses are not added to the WL and ECTS of the semester, nor to the total ECTS required for the degree and their grade does not contribute to the final grade of the degree. However, optional courses, their grade and ECTS are included in the transcript of records and the diploma supplement.

**7th Semester** (*All Compulsory Courses and 2 Compulsory Elective Courses shall be registered*)

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-1907011 (TH) 285-1907012 (L) | Immunology II | SC (CC) | 3 | | 2 | 5 | 150 | 6 |
| 2 | 285-1907021 (TH) 285-1907022 (L) | Clinical Chemistry IV (Laboratory Endocrinology and Special Biochemical Tests) | SC (CC) | 3 | 1 | 2 | 6 | 150 | 6 |
| 3 | 285-1907031 (TH) 285-1907032 (L) | Medical Parasitology | SC (CC) | 2 | 1 | 2 | 5 | 180 | 6 |
| 4 | 285-190704 | Hygiene | SC (CC) | 2 | | | 2 | 60 | 2 |
| 5 | 285-190705 | Clinical Microbiology | SC (CE) | 2 | | | 2 | 150 | 5 |
| 6 | 285-190706 | Pharmacology-Toxicology | SC (CE) | 2 | | | 2 | 150 | 5 |
| 7 | 285-190707 | Quality control / Organization in Diagnostic Laboratories | SC (CE) | 2 | | | 2 | 150 | 5 |
| 8 | | *Diploma Thesis (Bachelor's degree) | SC (CE) | | | | | 150 | 5 |

* The Diploma Thesis is a two-semester project and students who select this option must register for it also in the 8th semester.

**8th Semester** (*Mandatory Practical Training and 2 compulsory elective courses shall be registered*)

| No. | COURSE CODE | Course | Course Type | TH | TU | L | Hours / week | WL | ECTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 285-190801 | Molecular Diagnostics | SC (CE) | 2 | | | 2 | 150 | 5 |
| 2 | 285-190802 | Preventive Medicine | SC (CE) | 2 | | | 2 | 150 | 5 |
| 3 | 285-190803 | Mechanisms and biochemical markers of ageing-disease and chronic diseases | SC (CE) | 2 | | | 2 | 150 | 5 |
| 4 | 285-190804 | Human Microbiome | SC (CE) | 2 | | | 2 | 150 | 5 |
| 5 | 285-190805 | Forensic & Forensic Techniques - Forensic Laboratory | SC (CE) | 2 | | | 2 | 150 | 5 |
| 6 | | Diploma Thesis (Bachelor's Thesis) * | SC (CE) | | | | | 150 | 5 |
| 7 | | Practical Exercise II / Clinical-Laboratory Training (5 months) | SC (CC) | | | | | 600 | 20 |

*** The Diploma Thesis is a two-semester project and students who select this option must register for it also in the 8th semester.**

# 9. POSTGRADUATE STUDY PROGRAMS IN THE DEPARTMENT

**Five Postgraduate Study Programs, three in Greek and two in English,** are currently offered at the Department of Biological Sciences, School of Health Sciences.

**1 & 2)** "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases", in co-organization with the Department of Medicine of the Democritus University of Thrace, (in Greek and English).

**3)** "Vaccines and Infectious Diseases", in co-organization with the Department of Medicine of Aristotle University, (in Greek).

**4)** "Applied Gerontology and Geriatrics", in co-organization with the Department of Medicine of Aristotle University, (in Greek).

**5)** "Biomedical advances in the diagnosis of infectious disease", (in English), (in process of being formally published in the Government Gazette)

## 9.1 Postgraduate study program in"Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" (in Greek)

The MSc "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" (in Greek) (Government Gazette 4403, 06/10/2020), is co-organized with the Department of Medicine of the Democritus University of Thrace.

The MSc "Biomedical and Molecular Sciences - Diagnosis and Treatment of human diseases" (in English) (Government Gazette 3241, 24/06/2022), is co-organized with the Department of Medicine of the Democritus University of Thrace.

### 9.1.1 History

The MSc "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" was approved for the first time during the academic year 2014-2015 (Government Gazette approval no.3353 /12-12-2014) in co-organization with the Department of Medicine of the D.U.Th. After the renaming of the Department of Medical Laboratories to the Department of Biomedical Sciences, I.H.U., it was reestablished by the Government Gazette 4403, 06/10/2020.

In 2022 the English version of the Postgraduate Study Program was approved, (Government Gazette 3241, 24/06/2022)

### 9.1.2 Goals and Objectives of the Postgraduate study program

The objective of the MSc "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" is the postgraduate education, research, training and qualification of new scientists and researches in Biomedical and Molecular Sciences and their applications in the diagnosis and

treatment of diseases through the acquisition of knowledge and skills in basic and applied laboratory and clinical research.
The postgraduate studies program is part of the strategic planning of the Democritus University of Thrace and the IHU, is governed by scientific coherence and aims at further promotion of knowledge, development of research and technologies, fulfillment of the educational, research, social, cultural and developmental needs of the country, high-level specialization of graduates in theoretical and applied areas of specific disciplines, specific subject areas or individual branches of the first cycle of studies of the Departments.
Furthermore, the aim of the MSc is to provide students with a comprehensive overview of the applications of biomedical and molecular sciences and to interconnect their professional training with the employment opportunities available.

### 9.1.3 The postgraduate degree awarded

The MSc awards a single Diploma of Postgraduate Studies (MSc) in "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" without specializations.

### 9.1.4 Admissions

In the MSc graduates of the Departments of Medicine, Biomedical Sciences, Dentistry, Pharmacy, Biology, Nursing, Medical Laboratories, Veterinary Medicine, Biochemistry, Biotechnology, Molecular Biology, Agriculture, Geology, Geology, Chemistry, Physics, Mathematics, Engineering, Engineering, Engineering Schools, Economics and Management Sciences are admitted, also graduates of Computer Science, Social and Humanitarian Studies, Physical Education, Nutrition, Aesthetics-Cosmetology and other Departments of Universities of the national territory and of recognized similar foreign institutions as well as graduates of the Departments of T.E.I. and Military Schools of relevant disciplines.
Moreover, graduates of other Universities Departments or other Higher Education Institutions can also be admitted, following a decision of the Special Interdisciplinary Committee (SIC), provided that their thesis, which will be prepared in the above mentioned MSc, is absolutely relevant to their degree. The attendance of additional courses may be deemed necessary for graduates of Departments with a lesser relevance of the subject matter, following a decision of the Special Interdisciplinary Committee.

### 9.1.5 Duration of studies

The MSc program has a duration of four semesters.
A total of 120 credits (ECTS) are required for the award of the present MSc.
For obtaining the degree, compulsory attendance and successful examination is required in all courses distributed in the first two semesters of study (A and B) (30 ECTS respectively), all of which are compulsory. During the third semester of studies, the practical training (30 ECTS) is carried out, while during the fourth (D) semester of studies, the successful completion and preparation of the postgraduate thesis is required, the number of credits (ECTS) of which is set at 30.

### 9.1.6 Course schedule per semester

1st SEMESTER: BIOMEDICAL AND MOLECULAR SCIENCES (30 ECTS)
A1 Molecular Biology (Th – L)
A2 Clinical and Molecular Genetics (Th – L)
A3 Clinical and Molecular Cytology (Th)
A4 Clinical and Molecular Biochemistry (Th – L)
A5 Molecular Cytogenetics (Th)
A6 Clinical Chemistry (Th – L)
A7 Molecular and Clinical Pharmacology (Th)
A8 Clinical and Applied Physiology (Th – L)
A9 Genetics of microbes, parasites and fungi - Antimicrobial (Th – L)
A10 Molecular and clinical virology (Th)
A11 Genomics and Proteomics in Prognostic Medicine (Th – L)
A12 Biotechnology and its applications (Th)
A13 Biostatistics - Bioinformatics (Th – L)
A14 Occupational health and safety - Environmental hygiene - Water, air, soil - Mechanisms of mutagenesis - Carcinogenesis (Th – L)
A15 Mass population screening programme for early diagnosis and prevention of pathological conditions. Entry into the labour market - Labour relations (Th)

2ND SEMESTER: HEALTH APPLICATIONS (30 ECTS)
B1 Biomedical applications in health (Th – L)
B2 Molecular pre- and post-natal diagnosis of diseases - Symmetries and Molecular Thermodynamics of biomolecules (Th)
B3 Cell and Tissue Cultures - Nutrients Materials (Th – L)
B4 Biotechnology - DNA - Transgenic animals (Th)
B5 Bioethics in medicine - Cloning etc. (Th)
B6 Gene therapy and its bio-medical applications (Th)
B7 Immunobiology - Immunogenetics and diseases (Th – L)
B8 Oncology - Oncological therapy (Th)
B9 Diagnostic immunohistochemistry (Th – L)
B10 Anatomy - Histology (Th – L)
B11 Epigenetics - Pharmacogenomics (Th)
B12 Biomedical and Molecular Techniques - Related Instrumentation Technology (Th – L)
B13 Creation - use of research patents Development of skills in molecular sciences (Th)
B14 Design and development of a research protocol - International bibliography survey – How to write and publish a Scientific paper (Th – L)

3rd SEMESTER: PRACTICAL EXERCISE (30 ECTS)
C1 Practical training and education:
1) on developmental processes; adaptation to different diagnostic needs (10 ECTS),
2) Quality control (10 ECTS); and
3) on the application of laboratory techniques (10 ECTS)

4th SEMESTER: DEVELOPMENT OF a MSc THESIS (30 ECTS)
D1 Preparation of the Master's thesis

Th= Theory, L= laboratory or clinical exercise

### 9.1.7 Number of admissions

A maximum of fifty (50) postgraduate students may be admitted per year.

### 9.1.8 The staff

All faculty members of the Department of Biomedical Sciences of I.H.U. and of Dept. of Medicine of the University of Thrace, faculty members of the Aristotle University of Thessaloniki and of foreign universities.

## 9.2 Postgraduate study program in "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" (in English)

The MSc "Biomedical and Molecular Sciences - Diagnosis and Treatment of human diseases" (in English) (Government Gazette 3241, 24/06/2022), is co-organized with the Department of Medicine of the Democritus University of Thrace.

### 9.2.1 History

In 2022 the English version of the Postgraduate Study Program "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" was approved, (Government Gazette 3241, 24/06/2022).

### 9.2.2 Goals and Objectives of the Postgraduate study program

The objective of the MSc "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" is the postgraduate education, research, training and qualification of new scientists and researches in Biomedical and Molecular Sciences and their applications in the diagnosis and treatment of diseases through the acquisition of knowledge and skills in basic and applied laboratory and clinical research.
The postgraduate studies program is part of the strategic planning of the Democritus University of Thrace and the IHU, is governed by scientific coherence and aims at further promotion of knowledge, development of research and technologies, fulfillment of the educational, research, social, cultural and developmental needs of the country, high-level specialization of graduates in theoretical and applied areas of specific disciplines, specific subject areas or individual branches of the first cycle of studies of the Departments.
Furthermore, the aim of the MSc is to provide students with a comprehensive overview of the applications of biomedical and molecular sciences and to interconnect their professional training with the employment opportunities available.

### 9.2.3 The postgraduate degree awarded

The MSc awards a single Diploma of Postgraduate Studies (MSc) in "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" without specializations.

### 9.2.4 Admissions

In the MSc graduates of the Departments of Medicine, Biomedical Sciences, Dentistry, Pharmacy, Biology, Nursing, Medical Laboratories, Veterinary Medicine, Biochemistry, Biotechnology, Molecular Biology, Agriculture, Geology, Geology, Chemistry, Physics, Mathematics, Engineering, Engineering, Engineering Schools, Economics and Management Sciences are admitted, also graduates of Computer Science, Social and Humanitarian Studies, Physical Education, Nutrition, Aesthetics-Cosmetology and other Departments of Universities of the national territory and of recognized similar foreign institutions as well as graduates of the Departments of T.E.I. and Military Schools of relevant disciplines.
Moreover, graduates of other Universities Departments or other Higher Education Institutions can also be admitted, following a decision of the Special Interdisciplinary Committee (SIC), provided that their thesis, which will be prepared in the above mentioned MSc, is absolutely relevant to their degree. The attendance of additional courses may be deemed necessary for graduates of Departments with a lesser relevance of the subject matter, following a decision of the Special Interdisciplinary Committee.

### 9.2.5 Duration of studies

The MSc program has a duration of four semesters.
A total of 120 credits (ECTS) are required for the award of the present MSc.
For obtaining the degree, compulsory attendance and successful examination is required in all courses distributed in the first two semesters of study (A and B) (30 ECTS respectively), all of which are compulsory. During the third semester of studies, the practical training (30 ECTS) is carried out, while during the fourth (D) semester of studies, the successful completion and preparation of the postgraduate thesis is required, the number of credits (ECTS) of which is set at 30.

### 9.2.6 Course schedule per semester

1st SEMESTER: BIOMEDICAL AND MOLECULAR SCIENCES (30 ECTS)
A1 Molecular Biology (Th – L)
A2 Clinical and Molecular Genetics (Th – L)
A3 Clinical and Molecular Cytology (Th)
A4 Clinical and Molecular Biochemistry (Th – L)
A5 Molecular Cytogenetics (Th)
A6 Clinical Chemistry (Th – L)
A7 Molecular and Clinical Pharmacology (Th)
A8 Clinical and Applied Physiology (Th – L)
A9 Genetics of microbes, parasites and fungi - Antimicrobial (Th – L)
A10 Molecular and clinical virology (Th)
A11 Genomics and Proteomics in Prognostic Medicine (Th – L)
A12 Biotechnology and its applications (Th)
A13 Biostatistics - Bioinformatics (Th – L)
A14 Occupational health and safety - Environmental hygiene - Water, air, soil - Mechanisms of mutagenesis - Carcinogenesis (Th – L)

A15 Mass population screening programme for early diagnosis and prevention of pathological conditions. Entry into the labour market - Labour relations (Th)

2ND SEMESTER: HEALTH APPLICATIONS (30 ECTS)
B1 Biomedical applications in health (Th – L)
B2 Molecular pre- and post-natal diagnosis of diseases - Symmetries and Molecular Thermodynamics of biomolecules (Th)
B3 Cell and Tissue Cultures - Nutrients Materials (Th – L)
B4 Biotechnology - DNA - Transgenic animals (Th)
B5 Bioethics in medicine - Cloning etc. (Th)
B6 Gene therapy and its bio-medical applications (Th)
B7 Immunobiology - Immunogenetics and diseases (Th – L)
B8 Oncology - Oncological therapy (Th)
B9 Diagnostic immunohistochemistry (Th – L)
B10 Anatomy - Histology (Th – L)
B11 Epigenetics - Pharmacogenomics (Th)
B12 Biomedical and Molecular Techniques - Related Instrumentation Technology (Th – L)
B13 Creation - use of research patents Development of skills in molecular sciences (Th)
B14 Design and development of a research protocol - International bibliography survey – How to write and publish a Scientific paper (Th – L)

3rd SEMESTER: PRACTICAL EXERCISE (30 ECTS)
C1 Practical training and education:
1) on developmental processes; adaptation to different diagnostic needs (10 ECTS),
2) Quality control (10 ECTS); and
3) on the application of laboratory techniques (10 ECTS)

4th SEMESTER: DEVELOPMENT OF a MSc THESIS (30 ECTS)
D1 Preparation of the Master's thesis

Th= Theory, L= laboratory or clinical exercise

### 9.2.7 Number of admissions

A maximum of fifty (50) postgraduate students may be admitted per year.

### 9.2.8 The staff

All faculty members of the Department of Biomedical Sciences of I.H.U. and of Dept. of Medicine of the University of Thrace, faculty members of the Aristotle University of Thessaloniki and invated speakers of foreign universities.

## 9.3 Postgraduate study program in “Vaccines and Infectious Diseases” (in Greek)

### 9.3.1 History

The Postgraduate Study Program in " Vaccines and Infectious Diseases " (Government Gazette 5193, issue B, 06/10/2022), is co-organized with the Department of Medicine of the Aristotle University of Thessaloniki.

### 9.3.2 Goals and Objectives of the Postgraduate study program

The objective of the MSc " Vaccines and Infectious Diseases " is the fostering and enhancement of knowledge and research in the scientific fields of vaccines, infectious diseases and the social, ethical, legal and psychological problems that arise in epidemic and pandemic emergencies. In addition, the aim is to supply postgraduate students with specialized knowledge in the above fields, in order to ensure that they are adequately prepared for a successful professional career.
The objectives of the Proposed MSc " Vaccines and Infectious Diseases " are:
The theoretical and applied training of qualified health professionals including: 1) the acquisition of knowledge on the immune response to infectious agents, 2) the acquisition of knowledge on the structure, mode of transmission and pathophysiology of various infectious agents, 3) the acquisition of knowledge on vaccines, their mode of action and the human immune response with emphasis on new technology mRNA vaccines
4) training in strategic and operational planning in relation to health and social care facilities and services in pandemic situations; 5) training in precautionary measures for health professionals and the general population against infectious causes; 6) training in prevention and response to health emergencies; 7) training in epidemiological surveillance of infectious diseases; and 8) training in research methodology, with emphasis on applied health research.
Moreover the MSc aims to encourage interdisciplinary research on vaccination and infectious diseases and on the social, psychological, ethical and legal problems arising in health emergencies (pandemics), and the preparation of high-level postgraduate theses.

### 9.3.3 The postgraduate degree awarded

The MSc awards a single Diploma of Postgraduate Studies (MSc) in "Vaccines and Infectious Diseases”.

### 9.3.4 Admissions

The programme is open to graduates of University Departments and Departments of Higher Education Institutions (former graduates) of Health Sciences, and more specifically graduates of the Departments of Medicine, Dentistry, Veterinary Medicine, Pharmacy, Biology, Nursing,

Biomedical Sciences, Speech Therapy, Occupational Therapy, Physiotherapy and Medical Laboratories.
Also, graduates of departments related to the Health Sciences, such as Social Work, Sociology and Psychology, as well as graduates of related subjects to the above categories, following a reasoned decision by the selection committee.
Candidates for the MSc may also be final year students/graduates students of the Departments of Medicine, provided that they have graduated before the the approval of the final list of candidates for admission.

### 9.3.5 Duration of studies

The minimum duration of study in the Master's program leading to the award of the Diploma of Postgraduate Studies is one full calendar year, including the time for the preparation of the postgraduate thesis.
2. The maximum time allowed for the completion of studies shall be determined by decision of the Postgraduate Studies Programme Committee.

### 9.3.6 Course schedule per semester

| No. | Courses | Teaching hours / semester | ECTS |
|---|---|---|---|
| | **1st SEMESTER - COMPULSORY COURSES (face-to-face and distance learning** | | |
| A1 | Vaccine research, development and clinical studies | 25 | 6ECTS |
| A2 | Vaccines and Vaccination Programs | 25 | 6ECTS |
| A3 | Immunology of infectious diseases; COVID-19 | 25 | 6ECTS |
| A4 | Molecular epidemiology - Infection prevention and control / Epidemiological surveillance | 25 | 6ECTS |
| A5 | Research Methodology | 25 | 6ECTS |
| | | Total 125 | Total 30 |
| | **2nd SEMESTER - COMPULSORY COURSES (face-to-face and distance learning)** | | |
| B1 | Emerging Diseases - Bioterrorism | 25 | 6ECTS |
| B2 | Clinical and laboratory investigation of infectious diseases / Immunological, microbiological and molecular techniques | 25 | 6ECTS |
| B3 | Vaccine safety and vigilance, pharmacoepidemiology, pharmacovigilance | 25 | 6ECTS |
| B4 | Vaccines and Infectious Diseases:- Public health and health policy issues | 25 | 6ECTS |
| B5 | Psychosocial, bioethical and medico-legal issues in infectious disease management | 25 | 6ECTS |
| | | Total 125 | Total 30 |
| | | | |
| | | | |
| | 2nd SEMESTER (+ summer period) Preparation of a Master's thesis | | 15 |
| | TOTAL ECTS | | 75 |

### 9.3.7 Number of admissions

A maximum of forty- five (45) postgraduate students may be admitted per year.

### 9.3.8 The staff

All faculty members of the Department of Biomedical Sciences of I.H.U. and of Dept. of Medicine of the Aristotle University of Thessaloniki and invated speakers of foreign universities.

## 9.4 Postgraduate study program in "Applied Gerontology and Geriatrics (in Greek)

### 9.4.1 History

The Postgraduate Study Program in "Applied Gerontology and Geriatrics" (Government Gazette 5193, issue B, 06/10/2022), is co-organized with the Department of Medicine of the Aristotle University of Thessaloniki.

### 9.4.2 Goals and Objectives of the Postgraduate study program

The objective of the MSc " Applied Gerontology and Geriatrics " is the provision of specialized and in-depth theoretical knowledge and practical training in necessary clinical skills in the offered field of "applied gerontology with elements of geriatrics".
The aim of the Interdisciplinary Postgraduate Studies Program is to foster and promote knowledge and research in the scientific fields of geriatrics, gerontology, as well as of the social and psychological problems that emerge. In addition, the aim is to supply postgraduate students with specialized knowledge about the elderly (chronic diseases, pain, rehabilitation, nutrition, surgical implications, welfare, fragility and care), in order to prepare them for a more thorough understanding of the needs of the elderly, for a successful professional career.

### 9.4.3 The postgraduate degree awarded

The MSc awards a single Diploma of Postgraduate Studies (MSc) in "Biomedical and Molecular Sciences in the Diagnosis and Treatment of Diseases" without specializations.

### 9.4.4 Admissions

In the MSc graduates of the Departments of Medicine, Biomedical Sciences, Dentistry, Pharmacy, Biology, Nursing, Medical Laboratories, Veterinary Medicine, Biochemistry, Biotechnology, Molecular Biology, Agriculture, Geology, Geology, Chemistry, Physics, Mathematics, Engineering, Engineering, Engineering Schools, Economics and Management

Sciences are admitted, also graduates of Computer Science, Social and Humanitarian Studies, Physical Education, Nutrition, Aesthetics-Cosmetology and other Departments of Universities of the national territory and of recognized similar foreign institutions as well as graduates of the Departments of T.E.I. and Military Schools of relevant disciplines.
Moreover, graduates of other Universities Departments or other Higher Education Institutions can also be admitted, following a decision of the Special Interdisciplinary Committee (SIC), provided that their thesis, which will be prepared in the above mentioned MSc, is absolutely relevant to their degree. The attendance of additional courses may be deemed necessary for graduates of Departments with a lesser relevance of the subject matter, following a decision of the Special Interdisciplinary Committee.

### 9.4.5 Duration of studies

The MSc program has a duration of four semesters.
A total of 120 credits (ECTS) are required for the award of the present MSc.
For obtaining the degree, compulsory attendance and successful examination is required in all courses distributed in the first two semesters of study (A and B) (30 ECTS respectively), all of which are compulsory. During the third semester of studies, the practical training (30 ECTS) is carried out, while during the fourth (D) semester of studies, the successful completion and preparation of the postgraduate thesis is required, the number of credits (ECTS) of which is set at 30.

### 9.4.6 Course schedule per semester

1st SEMESTER: BIOMEDICAL AND MOLECULAR SCIENCES (30 ECTS)
A1 Molecular Biology (Th – L)
A2 Clinical and Molecular Genetics (Th – L)
A3 Clinical and Molecular Cytology (Th)
A4 Clinical and Molecular Biochemistry (Th – L)
A5 Molecular Cytogenetics (Th)
A6 Clinical Chemistry (Th – L)
A7 Molecular and Clinical Pharmacology (Th)
A8 Clinical and Applied Physiology (Th – L)
A9 Genetics of microbes, parasites and fungi - Antimicrobial (Th – L)
A10 Molecular and clinical virology (Th)
A11 Genomics and Proteomics in Prognostic Medicine (Th – L)
A12 Biotechnology and its applications (Th)
A13 Biostatistics - Bioinformatics (Th – L)
A14 Occupational health and safety - Environmental hygiene - Water, air, soil - Mechanisms of mutagenesis - Carcinogenesis (Th – L)
A15 Mass population screening programme for early diagnosis and prevention of pathological conditions. Entry into the labour market - Labour relations (Th)

2ND SEMESTER: HEALTH APPLICATIONS (30 ECTS)
B1 Biomedical applications in health (Th – L)
B2 Molecular pre- and post-natal diagnosis of diseases - Symmetries and Molecular Thermodynamics of biomolecules (Th)

B3 Cell and Tissue Cultures - Nutrients Materials (Th – L)
B4 Biotechnology - DNA - Transgenic animals (Th)
B5 Bioethics in medicine - Cloning etc. (Th)
B6 Gene therapy and its bio-medical applications (Th)
B7 Immunobiology - Immunogenetics and diseases (Th – L)
B8 Oncology - Oncological therapy (Th)
B9 Diagnostic immunohistochemistry (Th – L)
B10 Anatomy - Histology (Th – L)
B11 Epigenetics - Pharmacogenomics (Th)
B12 Biomedical and Molecular Techniques - Related Instrumentation Technology (Th – L)
B13 Creation - use of research patents Development of skills in molecular sciences (Th)
B14 Design and development of a research protocol - International bibliography survey – How to write and publish a Scientific paper (Th – L)

3rd SEMESTER: PRACTICAL EXERCISE (30 ECTS)
C1 Practical training and education:
1) on developmental processes; adaptation to different diagnostic needs (10 ECTS),
2) Quality control (10 ECTS); and
3) on the application of laboratory techniques (10 ECTS)

4th SEMESTER: DEVELOPMENT OF a MSc THESIS (30 ECTS)
D1 Preparation of the Master's thesis

Th= Theory, L= laboratory or clinical exercise

### 9.4.7 Number of admissions

A maximum of fifty (50) postgraduate students may be admitted per year.

### 9.4.8 The staff

All faculty members of the Department of Biomedical Sciences of I.H.U. and of Dept. of Medicine of the University of Thrace, faculty members of the Aristotle University of Thessaloniki and invated speakers of foreign universities.

## 9.5 Postgraduate study program in‘‘Biomedical advances in the diagnosis of infectious diseases’’ (in English)

### 9.5.1 History

The English-speaking Postgraduate Program (M.Sc.) "Biomedical advances in the diagnosis of infectious diseases", has been approved by the General Assembly of the Department of Biomedical Sciences of the School of Health Sciences of the International Hellenic University (minutes no. 13/2022) and is submitted for approval by the Steering Committee and the Postgraduate Programs Committee of the International Hellenic University (I.H.U.)

### 9.5.2 Goals and Objectives of the Postgraduate study program

The objective of the MSc is the postgraduate education, research, training and specialization of new scientific workforce in Biomedical and Molecular Sciences and their applications in the diagnosis of infectious diseases, with emphasis on the latest developments and the acquisition of knowledge and skills in both applied laboratory and clinical research.
The aim of the MSc is to provide students with up-to-date and specialized knowledge in the spectrum of biomedical developments in the diagnosis of infectious diseases. Through in-depth theoretical and practical laboratory training, students will be provided with a thorough education in the range of applications of biomedical and molecular sciences.
Furthermore, the aim of the MSc is to provide students with a comprehensive overview of the applications of biomedical and molecular sciences and to interconnect their professional training with the employment opportunities available.

### 9.5.3 The postgraduate degree awarded

The MSc awards a Postgraduate Diploma of Specialization (M.Sc.) entitled "Biomedical advances in the diagnosis of infectious diseases".

### 9.5.4 Admissions

At the MSc. Graduates of the Departments of Biomedical Sciences, Medicine, Dentistry, Pharmacy, Biology, Nursing, Medical Laboratories, Veterinary Medicine, Biochemistry, Biotechnology, Molecular Biology, Agriculture, Geology, Geology, Chemistry, Physics are admitted; also graduates of Mathematics, Engineering, Engineering, Technical Faculties, Economics and Management Sciences, Computer Science, Social and Humanities Studies, Physical Education, Nutrition, Aesthetics-Cosmetology and other Departments of Universities of the country, formerly T. E.I. and recognized similar institutions abroad as well as foreign graduates of the Departments of Technical Universities and Military Schools of relevant disciplines. Graduates of other Departments of Higher Education Institutions of Higher Education, Technical Universities or other Higher Schools may also be admitted, following a decision of the Steering Committee and the Department's Assembly. Candidates may also be undergraduate students who have successfully completed their undergraduate studies before the end of the registration period and who meet all the requirements for admission to the MS..

### 9.5.5 Duration of studies

The duration of studies leading to the MSc. degree is three (3) semesters and cannot exceed the maximum of eight (8) semesters.
A total of 90 credits (ECTS) are required for the award of the present MSc.
For obtaining the degree, compulsory attendance and successful examination is required in all courses distributed in the first two semesters of study (A and B) (30 ECTS respectively), all of which are compulsory. During the third semester of studies, the successful completion and preparation of the postgraduate thesis is required, the number of credits (ECTS) of which is set at 30.

### 9.5.6 Course schedule per semester

| CODE | COURSE TITLE | TYPE OF COURSE | EXAMINATION PERIOD | TYPE OF EXAMINATION | ECTS |
|---|---|---|---|---|---|
| A.1 | Molecular diagnostics of infection | C, T | February | Written examination | 5 |
| A.2 | Bioinformatics and study design in infectious diseases | C, T | February | Written examination | 5 |
| A.3 | Pharmacology- Drug action against pathogens | C, T | February | Written examination | 5 |
| A.4 | Community acquired infections and public health | C, T | February | Written examination | 5 |
| A.5 | Infection prevention and control | C, T | February | Written examination | 5 |
| A.6 | Laboratory Diagnosis of Clinical syndromes and infection | C, T - P | February | Written examination | 5 |
| | **Sum of ECTS (1st Semester)** | | | | **30** |
| B.1 | Investigation and diagnosis of imported infection- tropical diseases | C, T | June | Written examination | 5 |
| B.2 | Emerging Infectious Diseases | C, T | June | Written examination | 5 |
| B.3 | Resistance mechanisms in antibacterial | C, T - P | June | Written examination | 5 |
| B.4 | Advances in neurosciences- Central nervous system infections | C, T | June | Written examination | 5 |
| B.5 | Infections in hematologic patients | C, T | June | Written examination | 5 |
| B.6 | How to write a scientific paper | C, T | June | Written examination | 5 |
| | **Sum of ECTS (2nd Semester)** | | | | **30** |

| | | | | | |
|---|---|---|---|---|---|
| C.1 | Project-Thesis** | | | Oral examination | 30 |
| | **Sum of ECTS (3rd Semester)** | | | | **30** |
| | | | | | |
| | **Total ECTS credits** | | | | **90** |

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

## 10. DOCTORAL STUDIES in the DEPARTMENT

**Doctorate studies in the Department of Biomedical Sciences were established in 2020 (Government Gazette 3489, 24/08/2020).**

The Doctoral Degree is an academic title, which certifies the performance of an original scientific research and the essential contribution of its holder to the advancement of science and knowledge in the Biomedical Sciences discipline. Organized and independent innovative research motivated by the advancement of science through new data, methods and practices are encouraged and supported in the research field.

**Eligibility criteria**

Those who meet the following requirements are eligible to apply for a PhD thesis at the Department of Biomedical Sciences:

- Graduates of a higher education institution (University or Technological sector) of Greece or an equivalent institution abroad.
- Holders of a Diploma of Postgraduate Studies from a national university or a recognized as equivalent institution abroad or holders of a single and indivisible postgraduate degree according to article 46 of Law 4485/2017. In cases where the Bachelor's and Master's degrees are not relevant to the topic of the Doctoral Thesis, the Assembly of the Department may oblige the Doctoral Candidate to attend and to successfully pass one (1) to four (4) courses relevant to the topic of the Doctoral Thesis.
- Possess English language proficiency documented by a relevant certificate at least equivalent to the State Certificate of Language Proficiency Level B2 or other supporting documents.

Doctoral Candidates should not be related up to the third degree to a member of the Three-Member Advisory Committee or the Board of the Department or the Seven-Member Examination Committee.

In the following exceptional cases, PhD Candidates who do not hold a Diploma of Postgraduate Studies (M.Sc.) will be admitted as PhD Candidates:

a) graduates of 5-year and 6-year departments/schools of a cognitive subject related to the doctoral thesis, in the domestic territory, or equivalent recognized departments/schools abroad.

b) Scientists who have significant professional and/or research experience relevant to the subject of the thesis. In these cases, the Assembly of the Department shall justify adequately its decision following a proposal and a detailed memorandum of the Board of the Department, in accordance with the provisions of par. 3 of article 38 of the law. 4485/2017.

In the above cases a) and b), it may be proposed that the candidate attend and successfully pass the examination in courses of Undergraduate or Postgraduate Programs of the Department and/or other Departments, which are defined by the Assembly of the Department after the proposal of the Tripartite Advisory Committee and the Supervisor and are relevant to the topic of the doctoral thesis. The start of the dissertation may be started in parallel with the proposed courses.

**Duration**

1. The minimum duration for the award of the Doctoral Degree is three (3) full calendar years from the date of the appointment of the Tripartite Advisory Committee.
2. The maximum duration of the Doctoral Dissertation is six (6) full calendar years from the date of appointment of the Tripartite Advisory Committee. The above time may be extended for two (2) additional years, upon request of the candidate and a well-founded decision of the Departmental Assembly.
3. For Doctoral Candidates who are exceptionally admitted without holding a Master's Degree, the minimum time period for obtaining the Doctoral Degree is four (4) full calendar years from the date of the appointment of the Tripartite Advisory Committee.
4. The Assembly of the Department may decide to suspend the Doctoral Candidate's studies for a period of one or two academic semesters, upon his/her request. Permission to suspend studies for a period longer than two academic semesters may be granted if the Doctoral Candidate invokes serious and documented reasons. This period of suspension is not included in the total time spent on the Doctoral Dissertation.
5. A change or specialization of the title may be carried out after a well-founded recommendation of the Tripartite Advisory Committee and approval by the Assembly.
A change of topic in the Doctoral Dissertation under preparation may be carried out after a documented recommendation of the Tripartite Advisory Committee and approval by the Assembly. In the case where the change of topic of the Doctoral Thesis
leads to a new scientific field, the procedure of Article 8 of these Regulations shall be followed from the outset. The time already spent on the previous topic in the P.D.S. is not included in the total time spent on the Doctoral Dissertation.

More information can be found on the Department's website and in the regulations for doctoral studies, Department of Biomedical Sciences

# 11. SERVICES and STUDENT WELFARE OFFICE

## 11.1 European Programs Office (Erasmus)

The Erasmus+ Programme supports student mobility for:

- **Studies** (Erasmus+ Studies): Encourage students' (undergraduate, postgraduate, doctorate) mobility for the purpose of pursuing part of their curriculum studies by attending courses at other European Universities.
- **Erasmus Traineeship** (Erasmus+ Traineeship / After Placement): Mobility for students' practical training in a European institution (university, research center, company, laboratory, and other organizations) in order to practice and develop their professional skills.

The Erasmus+ Programme supports also the following activities:

- **University staff mobility** for professional training
- **University staff or enterprise staff mobility** for teaching abroad

All courses in the department are taught in the Greek language, with additional English support for foreign students.
Relevant information and the necessary documents for student applications are available on the website of the Erasmus Office of Sindos site at the International Hellenic University (https://www.ihu.gr/, www.ihu.gr/en/academicunits/intprogsen).
At the beginning of each semester, following an announcement on the Department's website, an informative meeting is held on the opportunities and participation process.
More information is provided by the Erasmus Coordinators of the Department of Biomedical Sciences.

## 11.2 Library

The purpose of the library is to enhance the educational process, improve students' qualifications and strengthen the institution's position on the international educational scene.
All students have the opportunity to use the library and its services including:
i. Borrowing books
ii. the possibility of requesting journal articles and borrowing books through the National Network of Scientific and Technological Libraries and from libraries abroad;
iii. Ability to search online databases
iv. System of electronic access to educational material posted by each lecturer on the asynchronous education platform, moodle (moodle.teithe.gr), direct communication, participation in discussion groups, etc.
v. Possibility of using electronic mail.
vi. Ability to access foreign language international e-journals free of charge (http://www.heal-link.gr).

vii. Search for articles in Greek journals through the index of Greek journals in the portal http://lib.teithe.gr.
viii. Possibility of on-line information about the library's books and related titles available in other institutions (http://www.lib.teithe.gr).
ix. Institutional repository containing digitized material (Degree Theses, R.P. Publications, Publications of the Institution, Administrative documents, etc.). (http://eureka.lib.teithe.gr)

Also all students have the possibility to use the reading room and the computer facilities of the library.
IHU Library & Information Centre
If you have any questions about Moodle, you can contact us by e-mail: library@the.ihu.gr tel. 2310013123

## 11.3 Student Restaurant

A restaurant is located on the Alexandrian Campus for the catering of students.
All active students of the University are provided with free meals.

## 11.4 Student Dormitory

There are student residences (dormitories) located on the Alexandrian campus. Active students of the University are provided with free accommodation based on the criteria and conditions provided by the Law.

## 11.5 Student Health Care Service

Undergraduate and postgraduate students and doctoral candidates who do not have medical and hospital care from an insurance institution are entitled to full medical and hospital care through the National Health System (NHS) in accordance with the provisions in force at the time.
The European Health Insurance Card (EHIC) for the above categories of students who move to countries of the European Union, as well as the coverage of any expenses that may arise, will continue to be issued by the services of the Institution.

## 11.6 The University Gym

The Sports Centre of the International University of Greece, has the mission to provide a wide range of sports programs and activities for students and staff of the University.
The goal of all programs is the qualitative improvement of the members of the academic community through exercise, game and physical activity. In order to fulfill its objectives, the

Sports Centre, while taking into account that it caters to people with different needs and abilities, has created a series of programs that include the following areas:

-Recreational Sports - Organized activities-courses -Tournaments and Sports Days - Competition and sports events - Competitive Sports -Day trips-Nature excursions

The Sports Center of International University of Greece, includes all outdoor and indoor sports facilities, located within the Alexandrian Campus area: Indoor Gymnasium, outdoor basketball courts, outdoor soccer field, and any other sports facilities that may be created on campus in the future.

## 11.7 Sports and Cultural Activities

The International Hellenic University encourages actions and activities of all members of the community in the fields of sport and culture. In this context, relevant committees are set up for this purpose by decisions of the competent bodies.
The Foundation provides infrastructure and resources for relevant activities, events, conferences and international exchanges, the main beneficiaries of which are students and other members of the university community.
community. More specific arrangements and procedures shall be laid down by decisions of the competent bodies.

In particular, in the Alexandrian Campus of Sindos, where the Department of Biomedical Sciences is located, there are two auditoriums and two conference rooms suitable for lectures available for this purpose whenever needed.
In addition, a modern Gymnasium has been built which can host a variety of events.

## 11.8 Network Operations Center (NOC)– Electronic Services

Network Management Center

The Network Management Center of the Alexandrian Campus of the I.H.U. in Sindos, Thessaloniki, Greece, designs and develops the network and telecommunications infrastructure of the campus, providing high quality services to the members of the institution.

It is responsible for:
The exclusive care for the installation, management and maintenance of the data, backbone and distribution network devices and the extension of their cable infrastructure.
The exclusive care for the installation, management and maintenance of the voice (VoIP) network of the Alexandria Campus.
The sole responsibility for the installation, management and maintenance of any extension of the data network, wired or wireless, within and outside the Alexandria Campus facilities and the management and maintenance of the data network interface with the Internet and with any

other non-institutional data network. Supervision of the access networks of the organizational units. The management of all third level logical addresses (IP addresses), private and public.
The policy of routing third level packets (IP packets) within the autonomous system and routing in cooperation with the National Research and Technology Network for the proper interconnection of the Foundation with the Internet.
The service of firewalls at the boundaries of the autonomous system in order to safeguard the functionality of the computer systems and the quality of the services offered.
The addressing and naming service for the computer systems connected to the data network.
The management of the central mail relay and routing service, enhanced with services to protect servers and users against malicious users.
The creation and maintenance of personal electronic mailboxes for all members of the academic community, teaching staff, administrative staff and students, with support for their management from personal computers via POP3S, IMAPS protocols, as well as via the webmail roaming service. The creation and management of e-mail lists for groups of users.
The creation, maintenance and management of a centralized anti-malware/antispam control mechanism. The creation and management of personal storage space for each member of the academic community, teaching staff, administrative staff and students.
The creation and maintenance of backups of the systems supporting the services offered on long term storage media, for example optical media (DVD), NAS, magnetic tapes, or other suitable media.
The management of the central Alexandria Campus website and the hosting of websites for the institutional units of the Foundation such as Faculties, Departments, Services as well as the hosting of individual user websites.
The directory service (directory services) and its interface with the directory service of the National Research and Technology Network.
The multi-level security services, including the physical layer and from the network level to the application level (use of secure protocols, encrypted transmission of personal data).
The web proxy/cache service. The computer time synchronization service
The development of advanced network services and their integration into the full-scale data network environment.
Training of the academic community and transfer of know-how to the individual organizational units on network services and infrastructure issues.
Providing support to users of the data network in terms of the services offered (User Help Desk, Help Desk).
Responsibility for recommending the operating rules of the data network to the relevant bodies of the Alexandria Campus.
Continuous redesign and upgrading of the data network in line with technological developments.

## 12. INTERNATIONAL DIMENSION and PARTNERSHIPS

Το Τμήμα, εφόσον το επιθυμεί, μπορεί να παραθέσει εδώ πληροφορίες όπως: προγράμματα διεθνούς εκπαιδευτικής συνεργασίας σε επίπεδο προπτυχιακών σπουδών που συμμετέχει το Τμήμα, συμμετοχή διδασκόντων από το εξωτερικό, συμμετοχή αλλοδαπών φοιτητών, συνεργασιες με εκπαιδευτικά κέντρα του εξωτερικού και του εσωτερικού και με το κοινωνικό σύνολο, συμμετοχή σε Ευρωπαϊκά δίκτυα, άλλες συμφωνίες διμερούς συνεργασίας, οργάνωση συνεδρίων, περιοδικά που εκδίδει το Τμήμα, κ.α.

## 13. REFERENCE to the DEPARTMENT and UNIVERSITY REGULATIONS

The hyperlinks to the Department's and the University's various operating regulations (regulations of studies, examinations, degree, operation, ethics, ...), are listed below.

## 14. APPENDIX: DETAILED COURSES OUTLINE

In the following, detailed descriptions of the courses per Semester and Direction of Studies are given, according to the standard of the Hellenic Authority for Higher Education (HAHE).

The course outlines are presented in accordance with the HAHE standard.
Hellenic Authority for Higher Education

## 14.1 1st Semester Courses

**COURSE OUTLINE**

## 14.2 2nd Semester Courses

## 14.3 3rd Semester Courses

## 14.4 4th Semester Courses

## 14.5 5th Semester Courses

## 14.6 6th Semester Courses

## 14.7 7th Semester Courses

## 14.8 8th Semester Courses