

Dual Degree MSc Program in Synthetic Biology

The University of Thessaly ✕ McGill University



Biology is reshaping humanity.
Want to guide the journey?

International Study Guide 2026

Contents

Welcome to the Dual MSc Program in Synthetic Biology	1
Dual MSc in SynBio	2
• Why this Program	4
• About the Program	6
• Program Structure & Curriculum	8
• Admission & Application	14
• Academic staff	16
• Career prospects	18
• Premises	20
• The SynBio lab	22
• Student support	24
• Practical Info	28
• Location	30
• Contact & Inquiries	32
The Department of Biochemistry and Biotechnology	34
The University of Thessaly at a glance	36
University of Thessaly: The vision	38
University of Thessaly: Internationalisation	40
The McGill University at a glance	42
McGill University: Research & Innovation	44
An ideal place to study, explore and build your future	46
Student life	52





Kostas Mathiopoulos
Director, Dual MSc in Synthetic Biology

Welcome to the Dual Master's Program in Synthetic Biology University of Thessaly – McGill University

Welcome to a pioneering academic initiative that brings together two institutions with a shared commitment to excellence, innovation, and global impact.

Synthetic Biology is rapidly emerging as one of the most transformative scientific fields of our time. By combining biology with engineering principles, we move from understanding living systems to designing and building them, addressing some of the most pressing challenges of our era: from human health and sustainable food production to clean energy and environmental protection.

This Dual Master's Program is not a coincidence; it is the outcome of a strategic and sustained effort. The Department of Biochemistry and Biotechnology of the University of Thessaly has been at the forefront of Synthetic Biology in Greece, coordinating OMIC-Engine, the national research infrastructure in the field, building strong international collaborations, and introducing Synthetic Biology early into its undergraduate curriculum. Through continuous participation in iGEM, it has fostered a culture of innovation, creativity, and hands-on learning.

In partnership with the world-leading McGill University, this program brings together complementary scientific excellence and distinct academic cultures to create a truly unique educational experience.

Designed for the next generation of scientists and innovators, the program equips students with the ability to:

- think across disciplines,
- bridge academia and industry, and
- transform ideas into real-world solutions.

Students benefit from:

- an international and immersive learning environment,
- access to cutting-edge research and expertise, and
- direct exposure to the innovation ecosystem shaping the bioeconomy.

In a world increasingly shaped by the bioeconomy, the ability to design biological systems is not just a scientific skill; it is a key driver of future innovation and sustainable development.

We warmly invite you to be part of this journey.

Synthetic biology will redefine food, medicine, climate resilience, and even the limits of human intervention in life itself.

Will you join the journey?

We offer direction, identity and the inclusion in something meaningful.

The Dual Master of Science program in Synthetic Biology awards **two distinct MSc degrees in Synthetic Biology**, one conferred by the University of Thessaly and the second by the McGill University.

This Dual MSc is a high-impact, research-driven program designed for top-performing life science and engineering graduates who want elite training at the intersection of biology and engineering, with exposure to both the European and North American innovation ecosystems.

Who should apply? A student who:

- Is driven by curiosity and purpose, not just grades
- Wants to work at the edge of science and society
- Is comfortable with ambiguity and fast-moving fields
- Sees biology as a responsibility, not just a discipline
- Wants their work to matter in the real world

Why This Program?

Synthetic Biology is a rapidly growing interdisciplinary field focused on creating new biological parts, devices and system or repurposing existing ones for beneficial purposes (gene therapies, sustainable materials, food production). Grounded in principles of standardization, abstraction, and modularity, it applies the Design-Build-Test-Learn engineering cycle to address long-standing biological challenges. It integrates knowledge across sectors such as natural sciences and technology, health, and social sciences, aligning closely with strategic priorities, including sustainable materials and technologies, biomedical advancement, biological system exploration, and the impact of digital-age technologies.

The field is expected to experience exponential growth, with a projected socioeconomic impact of 3.6 trillion dollars annually by 2030–2040. Synthetic Biology is a priority area in the EU.

The program addresses the highly interdisciplinary nature of the field, targeting topics ranging from engineering, computation, health, life sciences, biotechnology, plant sciences, to ethics. With expanding career opportunities in academia, industry, and government, the MSc program will attract a new pool of high-quality applicants and train specialists, enhancing their employability.

There is strong student interest, evidenced by the University of Thessaly and McGill's successful iGEM teams – both are top competitors in the world's largest synthetic biology competition and they have received several commendations.

This Synthetic Biology MSc program provides the grounds for innovation, facilitating resource allocation and brand building. It also provides a focused graduate education path for students interested in this highly active field.



About the Program

The Dual MSc Program focuses on the design, engineering, and construction of biological systems for innovative applications in health, biotechnology, and sustainable development. The program aims to train a new generation of scientists capable of integrating molecular biology, computational design, systems biology, and engineering principles to address complex scientific and societal challenges.

Key topics include genetic circuit design, genome engineering, biomolecular modeling, biomanufacturing, bioethics, and responsible research and innovation. Through advanced coursework, hands-on laboratory training, and international collaboration, the program equips graduates with the interdisciplinary expertise required for cutting-edge research and high-impact careers in academia, industry, and bioeconomy.

The normal duration of studies in the Dual Degree Program is set at **two (2) academic years**, comprising four (4) academic semesters in total, including coursework and the preparation of the MSc Thesis.

Upon successful fulfilment of the respective degree requirements of each institution, students shall be awarded **two separate diplomas**:

- (i) the degree of Master of Science in Synthetic Biology awarded by the University of Thessaly (120 European Credit Transfer and Accumulation System, ECTS), and
- (ii) the degree of Master of Science in Biological and Biomedical Engineering: Synthetic Biology (45 credits in the McGill University credit system) awarded by the McGill University.

The coursework, research activities, and Thesis completed within the coordinated study pathway are jointly recognized by both institutions and satisfy, in whole, the academic requirements of the respective master's programs.

The **minimum residency requirement** for a dual degree master's student is two full-time terms at the McGill University and one full-time term at the University of Thessaly. Mobility to the partner University can be used for attending courses or undertaking thesis work.

Amazing Benefits:

- Earn two respected degrees at a much lower cost than studying abroad full-time
- Study in both Europe and North America, gaining access to two major biotech and research networks
- Flexible study options that let students shape their academic and career path
- World-class education that is both prestigious and financially accessible
- Learn cutting-edge synthetic biology with a strong focus on ethics, responsibility, and real-world impact
- Strong opportunities for future PhDs, global research collaborations, and long-term international career growth.



Program Structure & Curriculum

In this dual MSc, students are required to complete a separate curriculum for both programs, each leading to a distinct diploma.

A co-supervised thesis/research project and transferable course credits link the two programs. The courses are organized in semesters, are held on a weekly basis and are conducted in English. The teaching of the courses is carried

out through a combination of face-to-face, synchronous and asynchronous distance learning.

To obtain the MSc degree in Synthetic Biology from the University of Thessaly, students must follow and successfully complete the following study program, which comprises 120 ECTS.

Semester 1

Foundations of Synthetic Biology

• ECTS: 7

Engineering principles in biology; abstraction, modularity and standardization (BioBricks, SBOL); DBTL cycle; chassis organisms; genetic-logic and circuit design; metabolic engineering; minimal cells; biofoundries; cell-free systems; orthogonality and xenobiology; iGEM.

Genome and DNA Engineering

• ECTS: 8

Advanced DNA assembly (Gibson, Golden Gate, MoClo) and high-throughput automated workflows; next-generation and single-cell sequencing for SynBio; CRISPR-Cas systems for genome editing in microbes and plants; sgRNA design and cloning; gene drives and paratransgenesis.

Synthetic Biology Experimental Design Lab

• ECTS: 4

Hands-on training in molecular cloning, mammalian cell culture and transient transfection, fluorescence and confocal microscopy with image analysis, flow cytometry sample preparation and gating, and presentation of experimental results.

Responsible Innovation & Biosafety

• ECTS: 4

Responsible Research and Innovation; bioethics; biosafety risk groups and containment levels; biosafety in CRISPR editing, engineered microbes and gene drives; biosecurity and dual-use research; EU regulatory frameworks; AI-in-biology risks; structured risk-assessment workshop.

Introduction to Computational/Quantitative SynBio

• ECTS: 7

UNIX/R scripting and statistics; sequence analysis (BLAST, HMMs); genomics, transcriptomics, proteomics, metabolomics and multi-omics integration; AlphaFold-era protein structure prediction and networks; metagenome mining; quantitative modelling of synthetic circuits.

Total Semester 1: 30 ECTS

Semester 2

Protein & RNA Engineering

• ECTS: 6

Foundations of protein engineering: structure, folding and rational design; high-throughput and AI-assisted in silico design. RNA design and assembly; synthetic RNA modifications; RNA-based regulatory circuits and riboswitches; CRISPR-based RNA-targeting systems.

Metabolic Engineering and Bioprocess

• ECTS: 6

Metabolic and bioprocess engineering for a bio-based economy; DBTL cycle; microbial cell factories; metabolic-network analysis and genome-scale modelling; fermentation optimisation and scale-up; synthetic microbial communities; sustainability (TEA/LCA); functional metagenomics.

Applied Machine Learning and AI for Synthetic Biology Design

• ECTS: 6

ML foundations and exploratory data analysis in biology; dimensionality reduction; regression and decision trees; neural networks and deep learning for sequence optimisation; generative AI for pathway engineering; synthetic data; AI ethics; "Bring Your Own Data" workshop.

Electives

• Each elective course has 4 ECTS credits, and students select 3 electives to complete the required 12 ECTS.

Elective topics list:

- Green Biotechnology
- Blue Biotechnology
- White biotechnology
- Yellow biotechnology
- Plant Metabolic Engineering
- Computational protein design course
- Metagenomics for synbio
- Synthetic RNA therapeutics
- Synthetic Microbial Ecology
- Cell-free Synbio Systems
- From Lab to Industry: Scale-up considerations
- Synthetic Biology in Gene Therapy and Vaccines

Total Semester 2: 30 ECTS

3rd and 4th Semester

Co-supervised Thesis 60 ECTS



To obtain the MSc degree in Synthetic Biology from the McGill University, students must follow and successfully complete the following study program, which comprises 45 credits, according to the McGill credit system.

Students admitted to the University of Thessaly are **awarded 39 transferable** credits by McGill University, as detailed below, based on transferable coursework and thesis credits.

Course title McGill University	Transferable Credits	Course title University of Thessaly
Synthetic Biology	3	Foundations of Synthetic Biology
Bioinformatics for Genomics	3	Introduction to Computational/ Quantitative Synthetic Biology
Metabolic Engineering	3	Metabolic and Bioprocess Engineering
Co-supervised Thesis	24	Co-supervised Thesis
TOTAL	33	

Therefore, students will be required to take the following **courses offered by the McGill University** in order to **complete the remaining 12 McGill credits**. These courses may be taken either while they are enrolled at the University of Thessaly or during their studies at the McGill University.

Course title McGill University	McGill credits
Seminars in Biological & Biomedical Engineering	3
Cell and Tissue Engineering	3
Biomanufacturing for RNA Biologics	3
Artificial Cells	3



Admission & Application

Admission Requirements

Graduates of Faculties of Health Sciences, Medicine, Natural Sciences, Agricultural Sciences, Engineering and other Departments of domestic Universities or recognized equivalent institutions abroad with a relevant subject area may be admitted to the Dual MSc.

Applicants to the University of Thessaly should have a **Cumulative Grade Point Average (CGPA)** of at least 7.5 out of 10 in their undergraduate degree.

Proof of excellent English language proficiency as certified by the Supreme Council for Civil Personnel Selection (ASEP) language proficiency certificates, or a degree or postgraduate or doctoral degree from a foreign university is a prerequisite for applying. Applicants must submit documented proof of competence in English by one of the following methods:

- Test of English as a Foreign Language (TOEFL): A total score of at least 100 on the Internet-based test with a minimum score of 20 in each section. A minimum score of 600 is required for the paper-based test; or
- An International English Language Testing System (IELTS) with a band score of 7.0 or greater (Academic module).

The examinations must have been taken **no more than two years prior to the application date**.

Evaluation of applicants

Evaluation of applicants is based on the following criteria:

- Overall Bachelor's degree grade
- Relevant publications, announcements at conferences
- Recommendation letters
- Interview: The interview is an essential part of the selection procedure, the purpose of which is to assess whether the candidate can critically use basic biological information to address specific research-related problems

Call of Expression of Interest

"While we await the final institutional approval from the Hellenic Authority for Higher Education (HAHE / ΕΘΑΑΕ), we invite prospective students to submit an early Expression of Interest (Eoi). This preliminary phase allows you to submit your complete application file early, enabling our academic committee to conduct a pre-evaluation and speed up the admissions process once official dates are locked."

In order to send your Expression of Interest, visit the following link and upload the required documents - <https://synbio.bio.uth.gr/admission-application/>



Teaching is supported on a permanent basis by Faculty members and Researchers from the University of Thessaly and the McGill University. Complementary teaching is organized by Visiting Professors with assignments for lectures on their specific expertise.

All of the lecturers are distinguished scholars with relevant expertise, collectively covering the full range of academic disciplines within the dual Master's program.

University of Thessaly

- Antonios GIAKOUNTIS**, Assistant Professor
Molecular Biology – Genomics
- Themistoklis GIANNOULIS**, Associate Professor
Animal Population Genetics: Genomics, Evolution and Biodiversity
- Anastasia KANTSADI**, Assistant Professor
Molecular Biophysics
- Dimitrios KARPOUZAS**, Professor
Environmental Microbiology & Biotechnology
- Demetres LEONIDAS**, Professor
Biochemistry
- Kalliopi LIADAKI**, Assistant Professor
Biochemical Pharmacology
- Konstantinos MATHIOPOULOS**, Professor
Molecular Biology
- Katerina MOUTOU**, Professor
Vertebrate Biology
- Kalliope PAPADOPOULOU**, Professor,
Plant Biotechnology
- Stamatia PAPOUTSOPOULOU**, Assistant Professor
Molecular Immunology
- Chrysanthi PATERAKI**, Assistant Professor
Microbial Biotechnology
- Anna-Maria PSARRA**, Professor
Biochemistry
- Theologia SARAFIDOU**, Associate Professor
Animal Molecular Genetics
- Sotirios VASILEIADIS**, Assistant Professor
Microbial Molecular-Ecology/ Genomics

Centre for Research and Technology Hellas

- Fotis PSOMOPOULOS**, Senior Researcher,
Bioinformatics and Machine Learning

McGill University

- Ignea CODRUTA**, Assistant Professor
Biosystem Engineering
- Martina STROMVIK**, Associate Professor
Biotechnology and Molecular genetics
- Mattheu BLANCHETTE**, Professor
Bioinformatics, Genomics
- Jasmin COULOMBE-HUNTINGTON**, Faculty Lecturer,
Bioinformatics
- Masad DAMHA**, Professor
XNA/DNA/RNA Synthesis, Gene Silencing
- Amin EMAD**, Associate Professor
Bioinformatics Network Biology Machine Learning
- Celia GREENWOOD**, Professor
Statistical genetics, data integration,
statistical methods in genomics
- Terence HEBERT**, Professor
GPCRs, cellular signalling
- Adam HENDRICKS**, Associate Professor
Motor proteins, intracellular transport
- Yue LI**, Associate Professor
Machine learning and computational biology
- Maureen MCKEAGUE**, Associate Professor
Nucleic Acid Chemistry, Green Chemistry
- Lisa MUNTER**, Associate Professor
Molecular pathways, Alzheimer's disease
- Ayyappasamy Sudalaiyadum PERUMAL**,
Faculty Lecturer, Transcription biology, RNA biologics,
biocomputation
- SATYA PRAKASH**, Professor
Artificial cells, probiotics
- Jiannis RAGOUSSIS**, Professor
Human Genetics
- Jaswinder SINGH**, Professor
Molecular Plant Breeding, Genomics
- YOJIRO YAMANAKA**, Professor
Developmental biology, Stem cell biology
- Sirui ZHOU**, Associate Professor
Human genetics, genetic epidemiology

Career prospects

Graduates of the Synthetic Biology MSc can pursue impactful careers in research, biotechnology, healthcare, pharmaceuticals, agriculture, environmental sustainability, bioinformatics, biotech entrepreneurship, science policy, and industrial innovation. The program's strong scientific foundation, quantitative training, and international exposure prepare students for both advanced academic pathways and leadership roles in innovation-driven sectors.

RESEARCH

Graduates can contribute to research in synthetic biology, genetics, and molecular engineering in academic or industrial settings.

BIOTECHNOLOGY

Careers in biotechnology include product development, genetic engineering, and sustainable industrial applications.

HEALTHCARE

Graduates may support advances in diagnostics, therapeutics, and personalized medicine.

PHARMACEUTICALS

Opportunities include drug discovery, vaccine development, and biomanufacturing.

AGRICULTURE

Synthetic biology can be applied to improve crop productivity, sustainability, and global food availability.

ENVIRONMENTAL SUSTAINABILITY

Graduates may work on bioremediation, waste treatment, and sustainable technologies.

BIOINFORMATICS

Roles involve analyzing, modeling, and engineering biological systems and genetic circuits using computational and data-driven approaches.

BIOTECH ENTREPRENEURSHIP

Graduates can develop innovative biotech startups in healthcare, sustainability, or industry.

SCIENCE POLICY

Careers may involve regulation, bioethics, and policymaking for emerging biotechnologies.

INDUSTRIAL INNOVATION

Graduates can contribute to advanced manufacturing and innovation-driven industrial processes.

Infrastructure and Facilities

To support learning and academic activities of the Master's Program, the University of Thessaly provides a new building complex in the Larissa Gaiopolis campus. In addition, the facilities of the Department of Biochemistry and Biotechnology at the Biopolis Campus, adjacent to the University Hospital of Larissa, the Department of Medicine, and the branch of the Central Library of the University of Thessaly will be used.

Gaiopolis campus

At the Gaiopolis campus, apart from Administration, Reception and Office rooms, there are available (a) one classroom, fully-equipped with audiovisual infrastructure, (b) a conference room, (c) a student-study room, (d) a dedicated computer workstation room, (e) a dedicated room for the large robotic equipment and (f) special storage rooms for chemicals and -80°C freezers.

In addition, a fully-equipped laboratory is available for the practicals. The laboratory is supported by a well-established technological infrastructure designed to enable advanced research, training, and experimental workflows across the fields of molecular biology, genomics, cell and microbial culture, analytical biochemistry, bioprocessing, bioimaging, and computational omics.

Biopolis campus

At the Biopolis campus, specific facilities of the Department of Biochemistry and Biotechnology will be available to the MSc programme, including three lecture halls, with audiovisual and classroom technology infrastructure and tablet connectivity for real-time interactive teaching, two teleconferencing rooms equipped with mobile screens and teleconferencing systems, one of the Department's student laboratories, with appropriate research equipment and the student Computer Lab, with workstations, a projector, and a screen.

Access is also provided to a 250-seat amphitheater located at the Biopolis premises, which serves as a central facility.

During library hours, two study areas with a capacity of at least 120 people are available, equipped with computers and free wireless internet access, thereby facilitating educational and training processes.

The Significance of a Well-Equipped Synthetic Biology Laboratory

A modern laboratory is far more than a physical space filled with instruments – it is the intellectual and technological heart of scientific education and innovation. For students participating in the dual master's program in Synthetic Biology, access to state-of-the-art laboratory infrastructure is fundamental to their academic and professional development.

Synthetic biology is an interdisciplinary field that integrates molecular biology, engineering, computational analysis, and biotechnology to design and construct novel biological systems. To train students effectively in such a demanding and rapidly evolving discipline, hands-on experience with advanced instrumentation is indispensable. A well-equipped laboratory empowers students to move beyond theoretical understanding and engage directly with experimental design, precision molecular techniques, microbial engineering, omics analysis, and bioinformatics-driven research.

Moreover, exposure to automated platforms, high-throughput technologies, and computational workstations mirrors the environment of leading international research centers and biotechnology industries. This ensures that graduates of the program are not only academically prepared but also technologically fluent and professionally competitive on a global scale. By fostering experimental rigor, innovation, collaboration, and technical confidence, this laboratory infrastructure forms the foundation for training the next generation of synthetic biologists.

Laboratory Equipment

Automation & High-Throughput

- Automated liquid-handling and robotic systems for sample preparation, nucleic-acid extraction, sequencing-library construction, and qPCR workflows.
- Oligonucleotide synthesizer and crystallization robot for automated synthesis and structural biology applications.

PCR & Digital Amplification

- PCR, qPCR, real-time PCR, and digital PCR systems for nucleic-acid amplification and quantification.

Next-Generation Sequencing

- Illumina iSeq/MiSeq and Oxford Nanopore MinION sequencing platforms.
- TapeStation Bioanalyzer for nucleic-acid quality control and sizing.

Imaging & Detection

- Fluorescence, confocal, and phase-contrast microscopy systems.
- Gel imaging, chemiluminescence detection, and multimodal plate readers.

Cell & Microscale Manipulation

- Microinjection, electroporation, and micropipette fabrication systems for cellular manipulation.

Cell & Microbial Culture

- CO₂ incubators, laminar-flow hoods, microbial incubators, and integrated cell-culture facilities.

Sample Processing & Storage

- Centrifuges, ultracentrifuges, ultra-low freezers, and liquid-nitrogen storage systems.

Analytical Chemistry & Structural Biology

- Spectrophotometry, gel electrophoresis, HPLC, LC-MS/MS, FPLC, and protein crystallography systems.

Bioprocess, Plant & Food Units

- Bioreactors, plant-growth chambers, insectary facilities, and food-processing/sensory-analysis units.

Computing Infrastructure

- High-performance computational servers and specialized workstations for omics, structural biology, and data analysis.

Academic and Student Support Services

The University of Thessaly and the Department of Biochemistry and Biotechnology offer a wide range of services to support learning and student needs throughout their studies in the MSc program. In particular, these services include:

Academic advising, mentoring and support

Academic advisors are faculty members assigned to support students throughout their studies by helping them manage academic or personal difficulties, choose courses, and plan their diploma projects. Advisors meet with students regularly, to discuss progress and explore suitable solutions or support services when needed. All meetings are arranged by mutual agreement while respecting data protection regulations.

Accessibility center for individuals with disabilities which supports students with disabilities or special educational needs, ensuring equal participation in academic and university activities. It provides guidance, support services, and accessibility-related assistance. Students can register or seek help through prosvasi.uth.gr or contact the Larissa office during working hours. The Department building is accessible to students with disabilities.

Student Advocate which mediates between students and faculty members or administrative services, ensuring legality within academic freedom, deal with unproper administration practices, and preserve the well-regulated operation of the Foundation (sinigorosfititi@uth.gr).

Counseling services offers free and confidential psychological support, counseling, and skills-development seminars to students across all campuses. Students can attend individual or group sessions to receive help with personal difficulties and problem management (<https://www.uth.gr/en/life/support/counselling>).

Gender Equality and Anti-Discrimination Committee promotes equality, inclusion, and the elimination of discrimination within the University's teaching, research, and administrative activities. It provides training, mediation, and support services for cases of discriminatory or harassing behavior while proposing actions and policies to strengthen gender equality. The Committee also supports research, seminars, and academic initiatives related to gender studies and equal treatment (<https://www.uth.gr/en/life/support/gender-equality-and-anti-discrimination-committee>).

Harassment – Bullying. The University of Thessaly follows a zero-tolerance policy against discrimination, bullying, harassment, and unequal treatment, ensuring a safe and respectful academic environment for all. Any incidents are handled responsibly and confidentially by the University. Students and staff can report issues at respect@uth.gr (<https://www.uth.gr/en/life/support/harassment-bullying>).

Child Care Center operates at the Gaiopolis campus to support students and staff by providing a safe and creative environment for children aged 2.5–4 years old. The center offers educational, cultural, athletic, and social activities that encourage children's development, learning, and play (<https://www.uth.gr/en/life/support/childcare-center>).

Ethics and Deontology Committee for postgraduate theses and doctoral dissertations of the Department of Biochemistry & Biotechnology (<https://bio.uth.gr/administration/>) and Ethics Committee of the University of Thessaly (<https://www.uth.gr/en/university/institutional/ethics-committee>) which, among others, ensure that postgraduate theses comply with ethical standards, academic integrity, and research regulations.

Student welfare services (meals, housing, healthcare)

MSc students are entitled to full medical, pharmaceutical, and hospital care within the National Health System (NHS), with costs covered by the National Organization for the Provision of Health Services (EOPYY). Students are also entitled to the European Health Insurance Card (EHIC).

A restaurant operates on the Biopolis Campus, offering free daily meals to eligible postgraduate students based on financial and family criteria. Students not eligible for free meals can still dine at a low cost, while menus are available online. The University of Thessaly provides student accommodation in Larissa with 502 beds across 8 buildings. Housing is granted based on financial, family, and health-related criteria.

Academic ID Card, is the official student ID card and provides access to discounted public transportation fares. Students can apply online through the Ministry platform, at academicid.minedu.gov.gr

Electronic Secretariat through which students can register for courses, view their grades, and request certificates (<https://www.uth.gr/en/studies/practical-information/e-registrar>).

IT Services – Network and Telematics Center, which provides a wide range of electronic services to students (<https://it.uth.gr/users/Students>). Indicatively, these include WebMail services, software such as Turnitin, MS Office, SPSS, MS Teams, remote access to University services via VPN, wireless internet access, network security, file exchange and storage, etc.

Library and Information Center which support and enhance the educational and research activities of the Institution, manage and disseminate specialized information to the wider national and international community, and actively participate in educational and cultural activities (<https://www.uth.gr/en/studies/practical-information/library-information-centre>).

e-Class asynchronous learning platform (<https://eclass.uth.gr/>), which is a comprehensive Learning Management System and a means of interaction and continuous communication between instructors and students. It also supports the electronic organization, storage, and presentation of educational material, creating the conditions for a dynamic learning environment. In particular, instructors can create user-friendly and functional online courses using their educational materials (notes, presentations, texts, images, etc.), while students gain an alternative means of accessing knowledge.



Career services

Career Office (Liaison Office) which informs students and graduates about career opportunities, offers workshops and training seminars, and connects students with the labor market (<https://www.uth.gr/en/life/career/career-office>).

International mobility and exchange support

Erasmus+ Office (<http://erasmus.uth.gr/gr/>), through which students can undertake internships, thesis work, attend and be examined in courses within the Erasmus+ student exchange program. A faculty member is appointed to guide students through the procedures, and ECTS credits are recognized upon successful completion of requirements.

Internship Office, which supports student internships. A faculty member is appointed as Internship Coordinator and collaborates with the University's Internship Office (<https://pa.uth.gr/>)

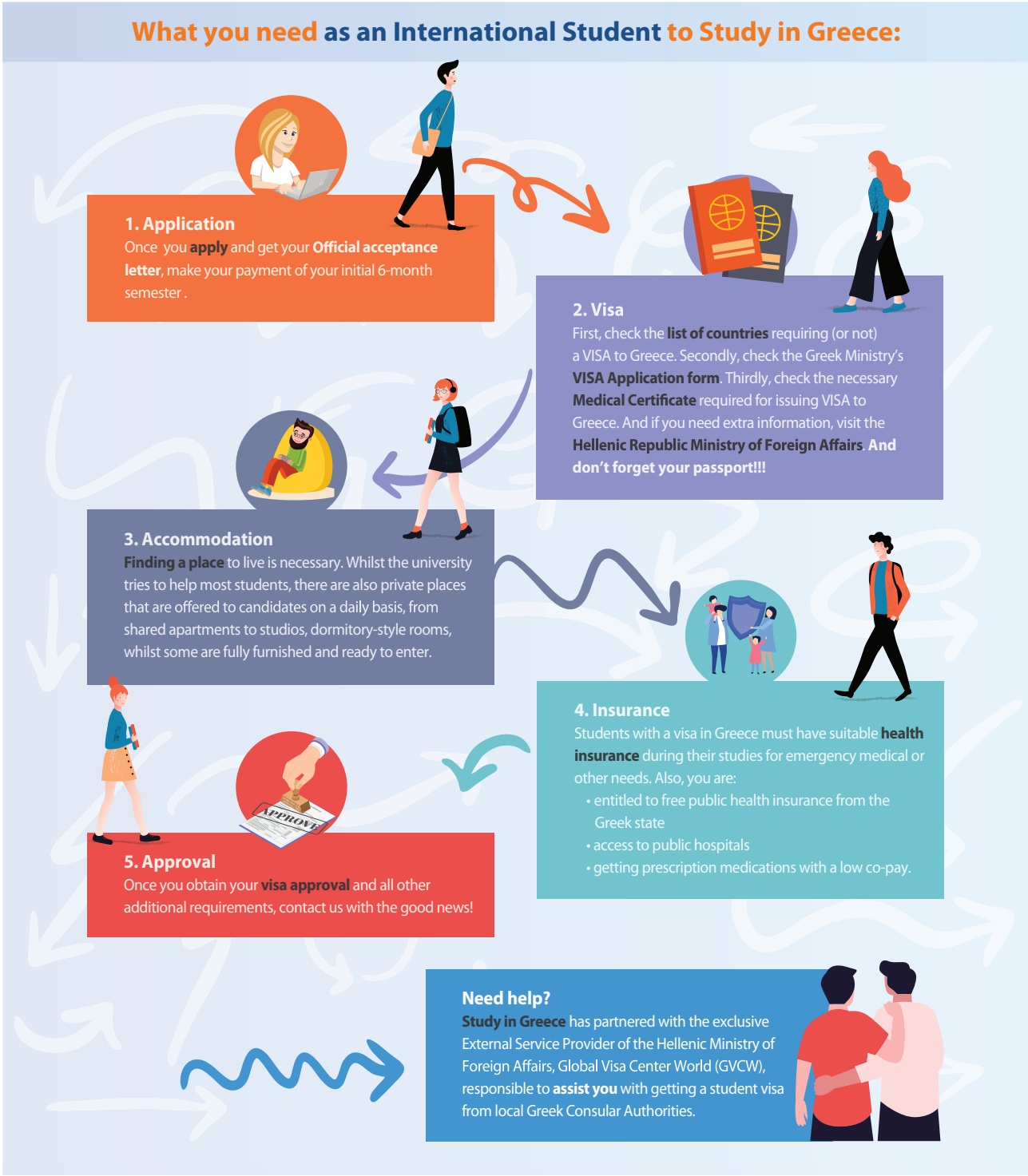
Students are informed about learning resources, academic activities, and research opportunities through various communication channels, including the University website, institutional emails, e-learning platform, social media and online announcements.



Practical Info

Tuition Fees	EU citizens	Non-EU citizens
	€3,500 per year	€7,000 per year

Visa Information (International Students)



Financial Support and Scholarships

MSc students may be eligible for a range of financial support mechanisms.

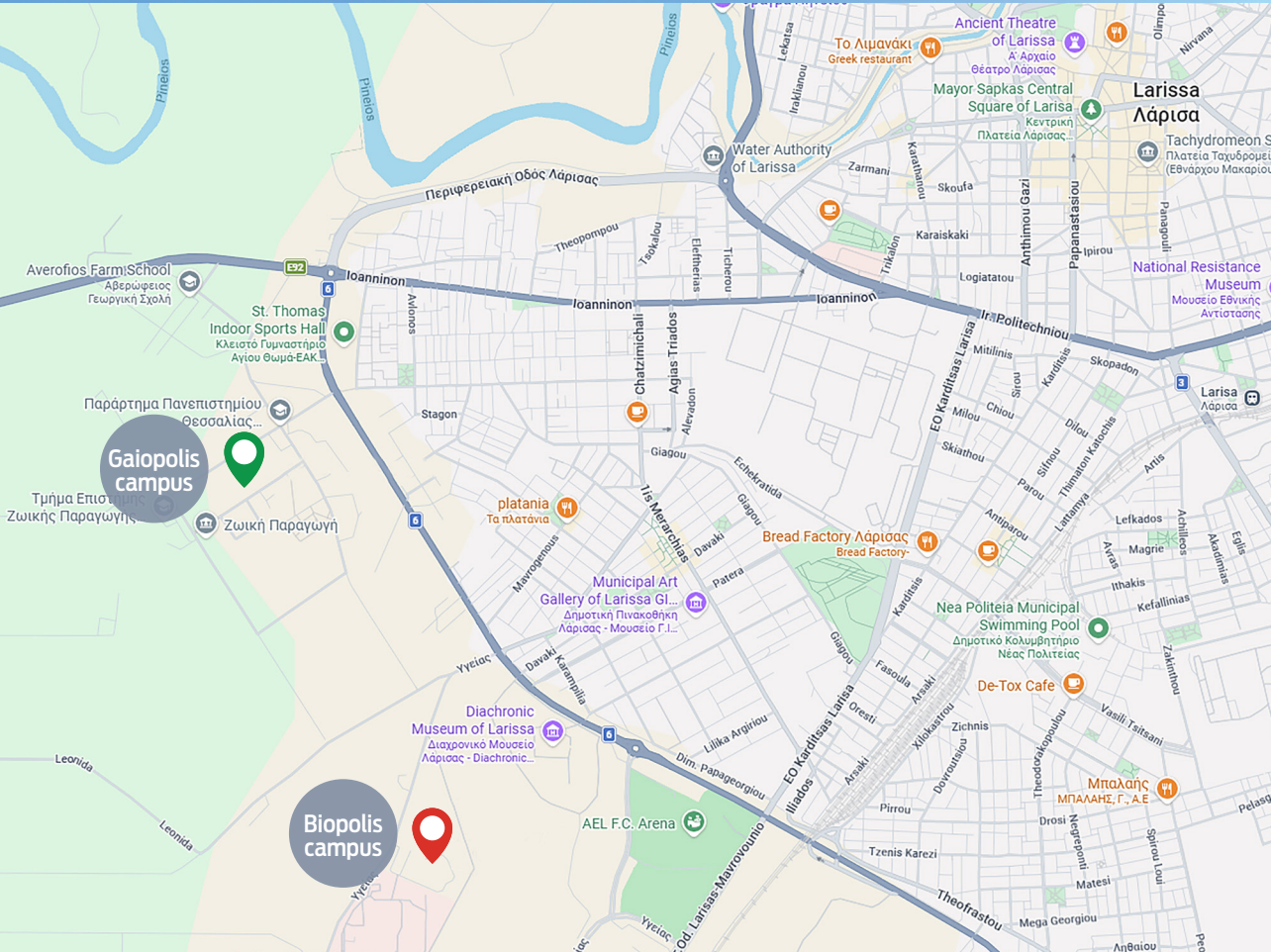
Fee exemptions may apply to students meeting income and academic criteria.



 **Biopolis campus, Mezourlo**
Biochemistry & Biotechnology Department
415 00, Larissa, Greece

 **Gaiopolis campus**
Larissa - Trikala Ring Road
413 34, Larissa, Greece

University of Thessaly





Professor Konstantinos Mathiopoulos,
Director of the Dual MSc program,
Department of Biochemistry and
Biotechnology, University of Thessaly
kmathiop@bio.uth.gr | +30 2410 565284



Associate Professor Georgios Mitsis,
Associate Director of the Dual MSc program,
Department of Biomedical Engineering, McGill University
georgios.mitsis@mcgill.ca | +1 514 398 4344

For any administrative support, email us at
g-bio@bio.uth.gr or call us at +30 2410 565271 -72 -73.

Excellence, innovation and recognition

The Department of Biochemistry and Biotechnology in the University of Thessaly stands out as a premier hub for innovation and scientific discovery. The Department is characterized by its exceptional research output and its ability to secure competitive funding. Specifically:



In parallel, the Department contributes actively to the **development of the region of Thessaly** through innovative research projects and providing services in collaboration with the private sector of Thessaly while it coordinated **the first research infrastructure in Greece on Synthetic Biology** in AgroFood Sector (OMIC-Engine).

Research Leadership: The Department holds the 1st place within the University of Thessaly in research funding per faculty member, reflecting the high quality and competitiveness of our research initiatives.

Global Recognition: Our Department is consistently recognized among the top institutions globally in the fields of Biotechnology, Biology, and Biochemistry by major international ranking bodies (such as EduRank and Research.com).

Scientific Impact: With 8 specialized Research Laboratories and a high citation index, our faculty and students contribute to cutting-edge science with real-world applications in health, agriculture, and the environment.

Innovation Excellence: Our commitment to excellence is further evidenced by international distinctions, including top-tier awards in prestigious global competitions like iGEM, highlighting the caliber of our student body and research mentorship.

A high priority for the Department is the **interaction with the society** through the development of consulting actions for social institutions, actors and stakeholders, media appearances and event organization as well as participation in projects and actions aiming to science communication.

Facing the future, the Department's aspiration is to continue to provide high level education in the modern disciplines of the scientific area of Biochemistry and Biotechnology, reinforcing in parallel its position in international scientific community acting as a pole of scientific innovation in direct interaction with industry, through the development of new innovative products and practices but also with society through a continuous communication and transfer of knowledge.



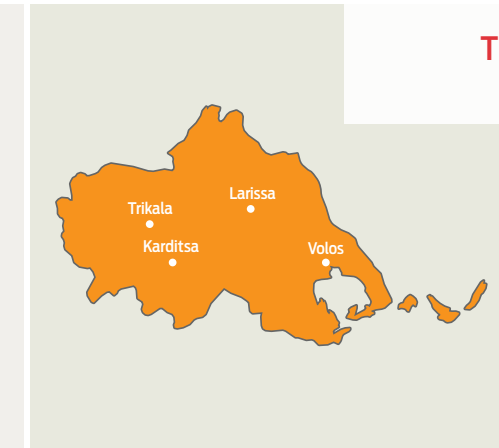
UNIVERSITY OF THESSALY

The University of Thessaly at a glance

The **University of Thessaly** (UTH) founded in 1984. Over subsequent decades the University expanded substantially and broadened the range of disciplines and programs offered. Currently the University of Thessaly includes 8 Schools [Health Sciences, Engineering, Humanities and Social Sciences, Agricultural Sciences, Technology, Economics and Administrative Sciences, Physical Education, Sport Science and Dietetics, and Sciences] and 35 Departments across multiple campuses in different cities of the Region of Thessaly.



Thessaly is located in central Greece



The campuses of the University of Thessaly

The University of Thessaly
at a glance



The University of Thessaly is a leading academic institution in Greece, distinguished by its strong commitment to research excellence, innovation, and entrepreneurship. Through its multidisciplinary research centers, international collaborations, and participation in European and national funding programs, the University promotes the generation of new knowledge and the development of innovative solutions to societal and technological challenges. It actively fosters an entrepreneurial culture by supporting technology transfer, intellectual property development, startup creation, and industry partnerships. Through initiatives that connect research with business and society, the University of Thessaly contributes to regional and national economic development while empowering students, researchers, and faculty members to transform scientific discoveries into impactful products, services, and sustainable ventures.

Vision

The vision of the University of Thessaly is based on four main pillars:

- **Excellence in Research:** The University of Thessaly aims to generate innovative and groundbreaking scientific knowledge, advancing academic excellence through cutting-edge research.
- **Innovation:** The University promotes the connection between research and its application in society and the economy, encouraging the development and implementation of innovative ideas.
- **Dynamic Partnerships:** The institution invests in building strong and mutually beneficial collaborations with leading academic institutions, research organizations and social and productive bodies at both national and international levels.
- **Inclusion, Diversity, and Social Equality:** The University of Thessaly is committed to providing an academic environment that fosters inclusion, multiculturalism and equality. It supports the participation of all individuals, regardless of origin, gender, age or other social characteristics, promoting justice and solidarity throughout the academic community.

The University of Thessaly fosters innovation through One Planet Thessaly, its Technology Transfer and Entrepreneurship Center. The initiative supports the protection and commercialization of research results, strengthens collaboration with industry, promotes entrepreneurship, and helps transform academic knowledge into innovative products, services, patents, and spin-off companies that create value for society and the economy.



Internationalisation

The University of Thessaly achieves internationalization through:

Teaching and research staff with international studies and connections. The history of the University up to this day has created a genuinely internationalized learning and research environment.

Education in sync with the international environment. The undergraduate and postgraduate study programs comply with international standards and make use of multilingual literature and educational materials.

Globally-oriented education. We organize many summer schools as well as more than ten English-language postgraduate programs which serve the consolidation of our academic community's international extroversion.

Increasing number of international students. Every year, the University welcomes international students to study in the Erasmus+ mobility framework. We have signed and kept active more than 350 bilateral agreements for student mobility with over 250 universities globally.

International research group network. The University research groups are participating as collaborators or coordinators in a multitude of research programs.

Visits by international scholarship holders and researchers. Visiting professors and scholars are integrated

in teaching and research activities of the University aiming at mutual educational benefits.

Reinforced exposure of the academic community to the international environment. We encourage our students' academic and administrative staff mobility taking advantage of all available funding tools. International academic bonds are strengthened through practices of bilateral mobility, constant international exposure and exchange of good educational practices.

Promoting multilingualism. Through the Foreign Language Centre we provide Greek and international students with the opportunity to broaden their knowledge of foreign languages. Specially designed Greek language courses as well as courses in English, French, German, Italian and Asian languages are offered to all the students.

Open Access. As a public academic institute, we ensure that all facilities and services offered to domestic students are also available for international students. We strive to provide all available information for students in both English and Greek.

Parallel activities. We believe that social, cultural, and participatory activities are essential to learning. International students and staff benefit from the region's rich cultural heritage and are encouraged to engage in extracurricular activities such as sports, arts, outdoor experiences, and cultural visits. They are also invited to participate in University of Thessaly community initiatives, including volunteering and social responsibility projects.



McGill is a public University, founded in 1821.

McGill University at a glance

McGill University is one of Canada's best-known institutions of higher learning and one of the leading Universities in the world. International students from more than 150 countries make up nearly 30% of McGill's student body, the highest proportion of any Canadian research university.

McGill is recognized around the world for the excellence of its teaching and research programs. Ernest Rutherford's Nobel Prize-winning research on the nature of radioactivity was conducted at McGill, part of a long tradition of innovation on our campuses that includes the invention of the artificial blood cell and Plexiglas. Today our professors are building the new field of epigenetics, developing alternative energy sources from crop plants and driving human achievement in every field imaginable.

In addition to a stellar faculty, McGill is known for attracting the brightest students from across Canada, the United States, and around the world. McGill students have the highest average entering grades in Canada, and our commitment to fostering the very best has helped our students win more national and international awards on average than their peers at any other Canadian university. The prestigious Rhodes Scholarship has gone to a nation-leading 149 McGill students.

Research & Innovation

McGill University's commitment to high-impact research is formalized in its Strategic Research Plan (2026–2031), which targets complex global issues through cross-disciplinary action. Backed by elite global infrastructure and initiatives, the University coordinates massive research efforts across vital socio-economic sectors.

Key Pillars of McGill's High-Impact Research

- **Sustainability and Climate Resilience:** McGill places in the global Top 10 for environmental impact and education, actively pioneering scalable green solutions and clean energy technologies.
- **Health and Biotechnology Advancement:** From clinical breakthroughs to specialized hubs, researchers advance early-phase drug trials and track global antimicrobial resistance.
- **AI and Advanced Digital Tech:** The university mobilizes technical talent to address rapid digital shifts, securing its spot as a leading medical and data research hub.
- **Democratic and Community Resilience:** Dedicated units run specialized scholar programs to bridge the gap between academic findings and public welfare policy.



In parallel, McGill University's research, innovation, and partnerships ecosystem actively translates academic discoveries into scalable, real-world solutions. The University collaborates with multinationals, startups, and government agencies to mobilize knowledge, secure patents, and accelerate the commercialization of faculty inventions. The University's approach focuses on fostering a vibrant, interdisciplinary environment designed to maximize societal and economic impact.

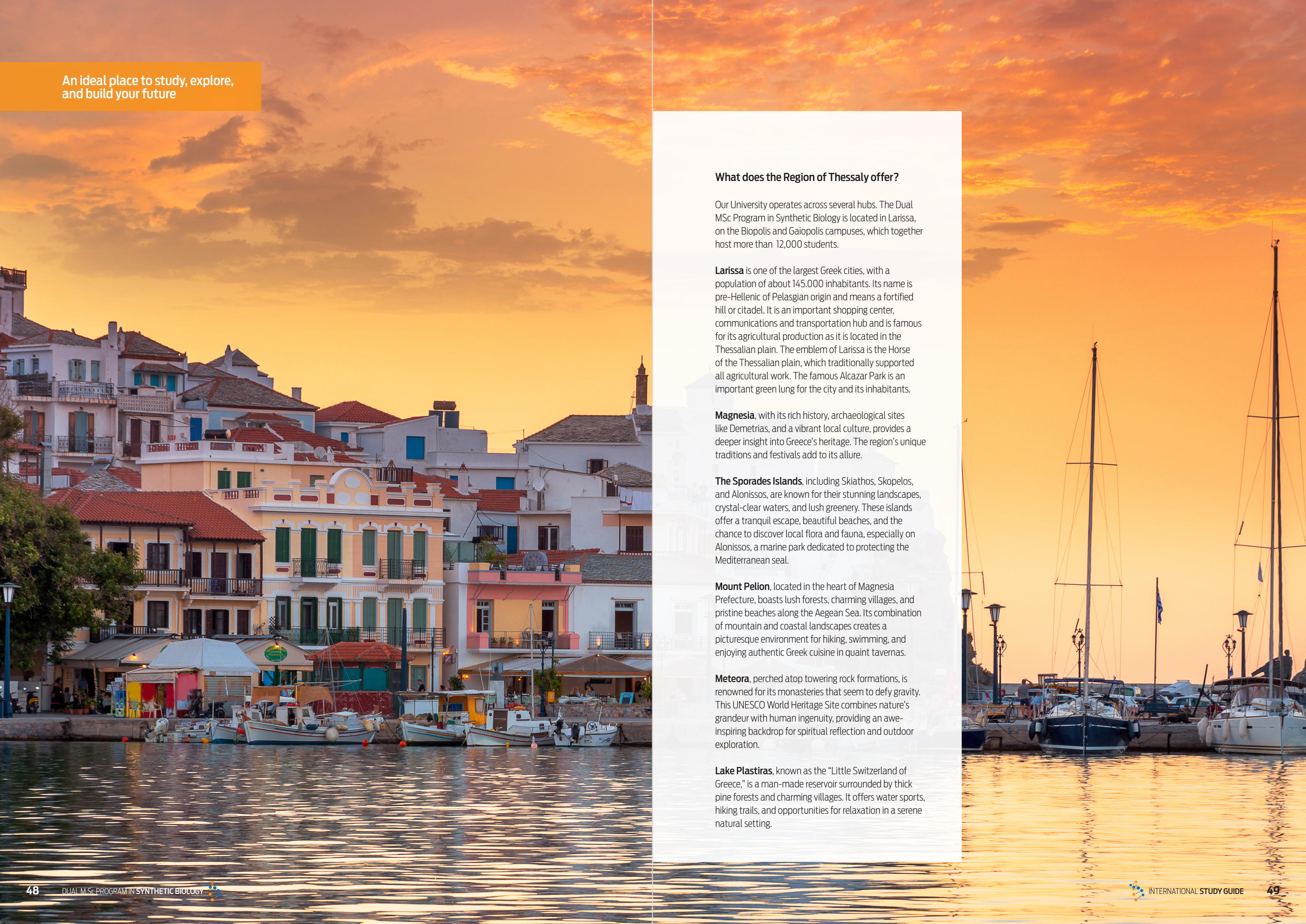


An ideal place to study, explore,
and build your future



We offer one of the best campus experiences in the world in a location renowned for its rich history, cultural heritage, and breathtaking landscapes. Greece is the birthplace of democracy, philosophy, and Western civilization, with iconic ancient sites such as the Acropolis and the Parthenon standing as testaments to its historical significance.

Greece is also famous for its stunning islands, offering picturesque beaches, charming, white-washed villages, and vibrant nightlife. The country's delicious cuisine is celebrated worldwide. Greek hospitality, warm Mediterranean climate, and a love for traditional music and dance further contribute to Greece's enduring appeal as a top destination.



An ideal place to study, explore,
and build your future

What does the Region of Thessaly offer?

Our University operates across several hubs. The Dual MSc Program in Synthetic Biology is located in Larissa, on the Biopolis and Gaiopolis campuses, which together host more than 12,000 students.

Larissa is one of the largest Greek cities, with a population of about 145,000 inhabitants. Its name is pre-Hellenic of Pelasgian origin and means a fortified hill or citadel. It is an important shopping center, communications and transportation hub and is famous for its agricultural production as it is located in the Thessalian plain. The emblem of Larissa is the Horse of the Thessalian plain, which traditionally supported all agricultural work. The famous Alcazar Park is an important green lung for the city and its inhabitants.

Magnesia, with its rich history, archaeological sites like Demetrias, and a vibrant local culture, provides a deeper insight into Greece's heritage. The region's unique traditions and festivals add to its allure.

The Sporades Islands, including Skiathos, Skopelos, and Alonissos, are known for their stunning landscapes, crystal-clear waters, and lush greenery. These islands offer a tranquil escape, beautiful beaches, and the chance to discover local flora and fauna, especially on Alonissos, a marine park dedicated to protecting the Mediterranean seal.

Mount Pelion, located in the heart of Magnesia Prefecture, boasts lush forests, charming villages, and pristine beaches along the Aegean Sea. Its combination of mountain and coastal landscapes creates a picturesque environment for hiking, swimming, and enjoying authentic Greek cuisine in quaint tavernas.

Meteora, perched atop towering rock formations, is renowned for its monasteries that seem to defy gravity. This UNESCO World Heritage Site combines nature's grandeur with human ingenuity, providing an awe-inspiring backdrop for spiritual reflection and outdoor exploration.

Lake Plastiras, known as the "Little Switzerland of Greece," is a man-made reservoir surrounded by thick pine forests and charming villages. It offers water sports, hiking trails, and opportunities for relaxation in a serene natural setting.



Quality of Life

Thessaly provides a decent standard of living with a range of options for food, entertainment, retail, healthcare, libraries, and research facilities. We have everything you need to study, live, and relax:

Food: Thessaly offers a diverse culinary scene with a wide range of traditional Greek cuisine and local specialties. Cities like Larissa, Volos, and Trikala have numerous restaurants, taverns, and cafes that serve delicious dishes, including fresh seafood, grilled meats, moussaka, and local desserts. You can also find international cuisine options and trendy eateries offering modern gastronomic experiences.

Entertainment: Thessaly cities provide a good mix of entertainment options. Larissa, as a regional capital, offers a vibrant nightlife with bars, clubs, and music venues. Volos, located by the sea, has a lively waterfront area with restaurants, cafes, and beach clubs. In addition, cultural events, festivals, and concerts take place throughout the year, showcasing local music, dance, and theater performances.

Retail: Thessaly cities have a decent retail infrastructure. Larissa, being the largest city in the region, boasts a variety of shopping options, including malls, department stores, and local markets. Volos also offers a range of shopping centers and boutiques. Other cities like Trikala and Karditsa have smaller but well-equipped shopping areas where you can find both local and international brands.

Healthcare: Thessaly has a reliable healthcare system, with well-equipped hospitals, medical centers, and clinics. Major cities like Larissa and Volos have multiple public and private hospitals, offering various medical specialties and emergency services. The quality of healthcare facilities is generally good, with highly skilled doctors and medical staff.

Libraries: Thessaly cities have libraries that cater to the intellectual needs of the local communities. Larissa, being a major educational hub, has several libraries, including the University of Thessaly Library and the Municipal Central Library. Volos also has public libraries that provide access to books, research materials, and digital resources.

History: Thessaly, Greece, is home to a rich historical landscape featuring Sesklo and Dimini, Europe's oldest Neolithic settlements. This deep heritage is showcased at the Diachronic Museum of Larissa and the Athanasakeion Archaeological Museum of Volos, both of which house rare prehistoric artifacts and classical relics. The region's cultural richness extends into later eras with the UNESCO-listed cliffside monasteries of Meteora and the ancient human history preserved within Theopetra Cave.



Cultural Activities and Sports

Students have the opportunity to participate in a variety of cultural and sport activities. Participation in these activities is encouraged as an important part of the wider university experience and a means of building community among students from different programmes and faculties.

Cultural Activities

- University of Thessaly's theatre group, the 'Third Floor' gives students the opportunity to become acquainted with the art of theatre, to work into a team and discover their self-expression skills with the use of theatre games and improvisation.
<https://www.uth.gr/en/life/culture-sports/art-groups>
- The University of Thessaly Musical Ensembles (vocal expression group and instrumental ensembles) ran by Maria Thoidou, Special Teaching Staff, are composed of students of the University Departments. Their aim is to promote the collective musical creation and culture of students primarily through vocal expression.
<https://www.uth.gr/en/life/culture-sports/art-groups>
- At the Paou Festival (Old Monastery of Paou – Argalasti, Pelion), students, graduates, and collaborators of the University of Thessaly's Music Ensembles come together in groups of artistic expression and collective support for the festival's cultural activities. Since 2020, the festival has been included in the Registry of Cultural Organizations of the Ministry of Culture.
<https://www.uth.gr/en/life/culture-sports/paou-festival>
- The University of Thessaly Choir was founded in 2015 in Volos, where it is primarily located. Its classes are made up by students and all University Departments participate in its activities. Choir rehearsals are held in the "Skouvara" room, on the mezzanine of Bulding 3 at the seafront complex of the University of Thessaly. (<https://www.uth.gr/en/life/culture-sports/cultural-groups>).
- Information about the Theater Group "Χωρίς Υποβολέα" (from Medical School and Biochemistry & Biotechnology Department) can be found at https://www.instagram.com/xwris_ypovolea/



- In March 2019, the creative writing team “Θρυαλλίδες” was born. Our name in greek means “an event that causes something catastrophic”, but, in our case, we turn it into something catastrophically creative. We create scripts, we share, we interact, and we express ourselves (facebook: Θρυαλλίδες-Ομάδα Δημιουργικής Γραφής and <https://www.instagram.com/thryallides/>).

- The Medical–Biochemistry Dance Group of Larisa offers classes (taught by students for students) in the Katsigra building (at Post Office Square, Larisa) on the 2nd floor. The classes are open to everyone without registration, do not require any prior dance experience, and are completely free!
<https://www.facebook.com/groups/dance.medbio.uth/>

Physical education office

The Physical Education Office aspires to improve student fitness, to promote team spirit through student participation in university sports teams and to encourage healthy competition. The university sports teams take part in interdepartmental tournaments and/or athletic events for university students in Greece and abroad. You can find more information on the program of athletic events in Larissa here:
<http://sports.teilar.gr/>, (boutlasg@uth.gr)



<https://www.facebook.com/uth.gr>



https://twitter.com/uth_gr



<https://www.uth.gr>



<https://www.linkedin.com/school/university-of-thessaly>



<https://www.uth.gr>

