



— POSTGRADUATE PROGRAM —




INFORMATION TECHNOLOGIES IN MEDICINE AND BIOLOGY



The Graduate Program ITMB: “Information Technologies in Medicine and Biology”


- ❑ The most recently established graduate program among those administered by our Dept. (5 years)
- ❑ Multidisciplinary graduate program
- ❑ Offers two Master Degrees:
 - **Medical Informatics** (1st track)
 - **Bioinformatics** (2nd track)

Participating Institutions:

- Dept. of Medical Instruments Technology of the Technological Educational Institute (T.E.I.) of Athens 
- Biomedical Research Foundation of the Academy of Athens (BRFAA) 
- NCSR “Democritos”, Inst. of Informatics and Telecommunications 



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Why was ITMB created?


The development of **Biomedical Imaging, Medical Informatics** and **Bioinformatics**, along with the rapid spread of their use in life and health sciences (medicine, biology, biotechnology) creates

- **new challenges**, but also
- **great opportunities for dynamic scientists** of diverse disciplines (computer scientists, engineers, biologists, medical doctors etc.),

who wish to specialize in these **rapidly expanding multidisciplinary fields** that depend more and more on knowledge and familiarity with **information technologies**.



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The ITMB program objectives

- ❑ The **specialization** of University graduates in applying modern information technologies in medicine and biology
- ❑ **Reinforce and extend** knowledge and skills of graduate students in areas such as:
 - **Information technology in healthcare**
 - medical imaging technologies, telemedicine, medical records management
 - **Organization, management and analysis of biomedical information**
 - biomedical data bases, biomedical signal processing and image analysis, data mining
 - **Development of algorithms, models and software tools for bioinformatics and systems biology**
 - Sequencing, genomics, proteomics, biomarkers discovery, biological networks, drug design



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The Master's Program

- ❑ **Duration of studies = 3 semesters**
- ❑ **Number of Courses = 11**
 - Core courses = 9
 - 1^o semester: 5 courses
 - 2^o semester: 4 courses
 - Elective courses = 2 (3^o semester)
- ❑ **Master's thesis (2nd and 3rd semester)**
- ❑ **Total ECTS units = 90**
 - Courses = $11 * 6 = 66$ ECTS
 - Thesis = 24 ECTS

Medical Informatics track: Core Courses

1^o semester

- Biology - Physiology
- Pattern Recognition
- Medical Imaging Systems
- Statistical Signal Processing
- Adaptive Signal Processing

2^o semester

- Image Processing and Analysis
- Acquisition and Processing of Biomedical Data
- Medical Information Technology and Telemedicine
- Radiographic Anatomy

Bioinformatics track: Core Courses

1^o semester

- Biology - Physiology
- Pattern Recognition
- Algorithms in Molecular Biology
- Introduction to Biotechnology
- Introduction to Bioinformatics

2o semester


- Image Processing and Analysis
- Biomedical Data Bases
- Algorithms in Structural Proteomics
- Machine Learning Methods in Computational Biology

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Elective Courses: 3rd semester


- Biostatistics
- Biomedical Data Mining and Knowledge Discovery
- Simulation Methods in Medicine and Biology
- Intelligent Medical Systems
- Contemporary Hospital and Health Care services: Organization, Operation, Bioethics
- Methods and applications of Informatics in Neurosciences
- Real Time Systems
- Embedded Systems
- Special Topics on Informatics and Biomedical Applications
- Special Topics in Biotechnology
- Special Topics in Bioinformatics



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Instructors

- In the **ITMB** program participate:
 - **10** faculty members of **DiT-UoA**
 - **8** researchers of **BFRAA**
 - **5** faculty members of **DMIT-TEI-Athens**
 - **2** researchers of **NCSR-Democritos-IIT**
 - **5** researchers and specialists from other institutions
- All instructors are experienced and recognized experts in their field of specialty
- All courses are evaluated by the students every year

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Students Selection


- High admission standards**
 - Applications: **~70**/year, Accepted: **15-25**/year

- Most applicants have background in computer science or engineering**

- Selection Criteria:**
 - Performance in undergraduate studies
 - Relevant Background and experience




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Student body – Support

- Active students = **50**
- MSc thesis in progress = **25**
- Alumni = **25**
 - Completed thesis summaries 
- Most students are coming from Greek Universities
 - Foreign students = **2**
- Scholarships – Distinctions
 - The top-scored entering student with excellent undergraduate record
 - The first student of each track with GPA > 8.5/10 at the end of the 2nd semester (9 courses) - Scholarship
 - The best graduating student per track with GPA > 8.5/10 - Honors
- The Program offers travel support for students who present papers related to their theses to international conferences.


Resources

- ❑ The only source of income for the program is the student fees
 - **800 €** per student per semester

- ❑ They cover:
 - Instructor payments
 - (Faculty members are not paid)
 - Secretarial support
 - Student scholarships
 - Student travel to conferences
 - Scientific events - Seminars
 - Infrastructure support
 - Consumables etc.




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Multidisciplinary Seminar Series


- We invite **recognized speakers** with cross disciplinary work 
- Has become a well established **forum** of scientific exchange in the Athens area
- All our seminars are **televised** and broadcasted live as **webminars** on the internet
- They are also provided as free **video lectures**



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Identified directions for growth

- ❑ Establish **active collaboration** with similar programs in Europe
- ❑ **Internationalization** – improve international visibility and cooperation
- ❑ **Strengthen** research activities
 - Establish scholarships for doctoral studies
 - Establish postdoctoral fellowships
- ❑ **Cooperation** and common events **with alumni**



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NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS -- DEPARTMENT OF INFORMATICS AND TELECOMMUNICATIONS

INFORMATION TECHNOLOGIES IN MEDICINE AND BIOLOGY

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Welcome

The rapid advances in the fields of Biomedical Imaging, Medical Informatics and Bioinformatics, as well as their wide spreading use in Life Sciences (medicine, biology, biotechnology) create new challenges but also exciting new career opportunities for young, dynamic university graduates with different backgrounds (computer scientists, engineers, biologists, medical doctors etc) who are willing to deepen their understanding by combining knowledge sources and specialize in these important and fast developing fields that heavily depend on advanced Information Technology skills.

The Postgraduate Program "Information Technologies in Medicine and Biology" (I.T.M.B.) is by its very nature intensely interdisciplinary. Its objective is to strengthen the knowledge and skills of its postgraduate students in the application of informatics, applied mathematics, and statistical analysis methods in Life Sciences and Biotechnology. The program focuses on subjects related to the organization, management, processing and analysis of biomedical signals and data, as well as on the development of models, algorithms, analysis methods and software tools for bioinformatics, computational biology and systems biology.

The I.T.M.B. Postgraduate Program is organized and administered by the Department of Informatics and Telecommunications of the National and Kapodistrian University of Athens (UoA), in cooperation with the Technological Educational Institute (TEI) of Athens, and in collaboration with the Foundation for Biomedical Research of the Academy of Athens (BRFAA) and the Institute of Informatics and Telecommunications of the National Centre for Scientific Research "Demokritos". The courses are taught by Professors and Researchers of the above institutions with experience in the Program's fields of study, and by scientists-specialists of other institutions in Greece and abroad.

The Postgraduate Program I.T.M.B awards two degrees:

1. Master of Science (M.Sc) in:
 - > Medical Informatics
 - > Bioinformatics
2. Doctor of Philosophy (Ph.D)

[» more](#)

Announcements

Cross-disciplinary Seminars

09/11/11, time: 16:00:
«How to "improve" amino acid sequences - technical limits of evolution and lab methods» Michael Szardenings

> 06/02/12
The **Exams Schedule** of February 2012 is available.

> 25/01/12
Congratulations from the Steering Committee of the program to the students for their distinctions.

> 12/01/12
The **graduation ceremony** of the ITMB students will take place on **Thursday 26/01/2012**, at 11:00 in the Big Ceremony Room of the University of Athens.

> 19/12/11
Third semester students that meet the criteria to be considered for **scholarship** are kindly requested to submit a petition to the Administrative Support of the Program (Mrs. Kanavou) by **Wednesday 21/12/2011**.

[» more](#)



Subscribe to the Rss feed for forthcoming important announcements

> Courses

> Courses Schedule 2011-12:

- » Medical Informatics
- » Bioinformatics

> Instructors

> Organization-Administration

- » Founding Article (FEK) (In Greek only)

> For Graduate Students

> Forms-Applications:

- » Application form (MSc)
- » Application form (PhD)

Useful

- » Access to the departments (contact, maps, directions)
- » Administrative Support of the postgraduate program: Mrs. Kanavou (office A30) **Tel.:** (+30) 210-727 5337, **Fax:** (+30) 210-727 5214, **e-mail:** kkanavou@di.uoa.gr
- » Download the **Program's Brochure 2011-12** in two resolutions (Click zip file to download): (zip file 499Kb) (zip file 2.080Kb)

Links

- » Reading Room of the Dept. of Informatics & Telecommunications
- » Library of NKUA
- » Library of TEI-A
- » Library of NCSR-Demokritos
- » Library of BRFAA



NKUA
Dept. of Informatics & Telecommunications



TEI of ATHENS
Dept. of Medical Instruments Technology



ACADEMY OF ATHENS
Biomedical Research Foundation



NCSR DEMOKRITOS
Institute of Informatics & Telecommunications

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Ευχαριστώ πολύ!

See details at:

<http://itmb.di.uoa.gr/indexEng.html>

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