

Biology Programs in English at Eötvös Loránd University (ELTE), Budapest



WE OFFER a broad-based general education in biological sciences for Bachelor of Science (B.Sc.) degree, and the possibility of specialization in biochemistry, molecular biology, biotechnology, genetics, microbiology, immunology, bioinformatics, cell biology, developmental biology, physiology, neuroscience, plant biology, ecology, ethology and anthropology for Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) degrees. Also a part-time education is offered in which subjects of BSc and MSc levels can be selected.

ELTE is the oldest university in Hungary that was founded in 1635. Also dated from this time are the great educational traditions of Hungary, which have given 14 Nobel-prize winners to the world. ELTE adopted its present name after the world famous Hungarian physicist, Eötvös Loránd, in 1950. Many outstanding scientists, including four Nobel laureates, are among the teachers and alumni of the University.

(See more in “[A modern university with more than 370 year-old traditions](#)“ below)

Statement of Non-Discrimination

Eötvös Loránd University does not discriminate on the basis of race, color, national or ethnic origin, religion, gender, marital status or handicap.

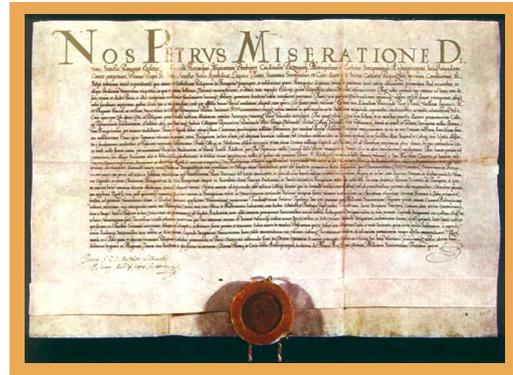


Buildings of the Faculty of Natural Sciences
on the new campus

Please visit <http://bio.elte.hu/engedu/>

A modern university with more than 370 year old traditions

- **The University was founded in 1635** in the rural town of Nagyszombat by Cardinal Péter Pázmány for teaching catholic theology and philosophy. In 1770-1780, it was transferred to Buda and later to Pest, and with the support of Maria-Theresa, the Empress of Austria and Queen of Hungary, **became the Royal Hungarian University.**
- During the following decades new faculties were established to meet the expectations of a learned society. In the second half of the 19th century the University **developed into a center of modern higher education** in today's sense covering nearly every field of science.



The Foundation Letter of the University



The new campus of the Faculty of Natural Sciences on the banks of the Danube

- In 1950 the university was reorganized and **adopted its present name** after one of its professors and world-famous physicist, Loránd Eötvös.
- Recently, a **new campus has been built** for the faculties of natural and social sciences and informatics on the scenic banks of the Danube.
- Presently the university **has eight faculties** for: Sciences, Informatics, Law and Political Sciences, Humanities, Social Sciences, Education and Psychology, Elementary and Nursery School Teachers and the Bárczi Gusztáv Faculty of Special Education.
- Eötvös Loránd University **is internationally recognized** and the Hungarian Accreditation Board accredits its programs. The diplomas issued by Eötvös Loránd University are acknowledged worldwide, and the credits of its courses are transferable in all Countries of the European Union.
- Over the last 100 years, Eötvös University had among its teachers and alumni many world famous scientists and four Nobel-Prize laureates. The actual number of **yearly-enrolled students reaches 38,000** and the academic staff is 1800 highly qualified teachers and researchers.



Students on laboratory practice

Details of the programs

◆ Pre-university program

• Features of the program

▪ **Objectives** This program is **recommended for** future students who want to build a firm basis for their further studies in the B.Sc. and M.Sc. programs of Eötvös Loránd University. The successfully completed preparatory program is acknowledged by a certificate and automatically **ensures admission** to the B.Sc. program.

▪ **Curriculum** The curriculum of the pre-university program is assembled on topics relevant to the B.Sc. program. It includes courses in biology, chemistry, physics and mathematics. The program is organized in **two forms**: the **two-semester form** is a twin ten-week program **from** the beginning of **October to mid-December** (first semester) and **from** the beginning of **February to** the beginning of **April** (second semester). The **one-semester form** is a twelve-week, intensive program from the beginning of **February** till the end of **April**. A good working knowledge of English is required. The applicants may ask for a language course to improve their English but the tuition fee of the Pre-University Program does not cover the costs of this.

▪ **Criteria of application and acceptance** Those students can apply who have finished a secondary school education (equivalent of a General Certificate of Education [UK] or a high school diploma [US]), or who have completed at least three years of the usual four years of secondary school education (aged 17) in countries where the last year of secondary education is a pre-university program.

• **Program head**: Attila L. Kovács Ph.D. associate professor

• **Program coordinator to be contacted**: Erika Tóth Ph.D. assistant professor (totherika@caesar.elte.hu)

◆ B.Sc. program

• Criteria of application and admission

The successful applicant must be at least 17 years of age, a graduate from a high school or a senior secondary school (with graduation equivalent to the General Certificate of Education [UK] or high school diploma [US]), or must have at least three completed years of a four-year secondary school where the last year is a pre-university program. The prerequisite of acceptance is a good command of English.

▪ **Prior studies required** in: biology, chemistry, mathematics and physics.

▪ **Documents to be enclosed** to the application form: in addition to the generally needed data and documents, the applicant should provide information about her/his **earlier studies and accomplishments**, in biology, chemistry, mathematics and physics. Documents should be either originals or attested copies in English, or authorized English translations. (see “*The application form*” and “*Application and admission procedures*”)

• Features of the program

▪ **Objectives** Students participate in **intensive basic and advanced level courses** to gain an essential theoretical knowledge **in the different fields of biology**, and to become

familiar with the most important methods. The theoretical and practical knowledge of B.Sc. graduates enables them to recognize and analyze new scientific problems in biology, and to plan, perform and evaluate simple laboratory or open field experiments for their investigation. The knowledge obtained in the B.Sc. program also forms an excellent basis for the continuation of studies in a M.Sc. program.

- **Curriculum** The curriculum includes **introduction** to the major disciplines of science that support various biological subjects (chemistry, physics, mathematics, informatics - Module 2), **basic** courses in biology (Module 3), **advanced** courses in biology (Module 4) and **special** courses (Module 5 - for further details of the curriculum and the content of Modules please visit "<http://bio.elte.hu/engedu/>"). In the case of the special courses (starting from the 3rd semester), students have a certain freedom of choice in assembling their own list of courses they wish to attend, according to their interest and their later choice of M.Sc. program specialization. Students must collect a **total of 180 credits** by passing the examinations of theoretical courses, and earning a passing grade for practical training (170 credits) as well as by writing a B.Sc. Thesis (10 credits). (For the credit system and grading see "*System of evaluation of students' performance*").

- **Thesis work** To obtain their degree, candidates of B.Sc. have to write and orally present a "B.Sc. Thesis". It must be an **up-to-date critical review** of the relevant scientific literature about a biological problem. A committee from teachers in the biology program will evaluate the „B.Sc. Thesis”.

- **Program head:** Béla Böddi D.Sc. professor

- **Program coordinator to be contacted:** Erika Tóth Ph.D. assistant professor (totherika@caesar.elte.hu)

◆ MSc program

- **Criteria of application and admission**

The successful applicant must have a **B.Sc. degree in Biology** and a good command of English. The applicant is interviewed during the application and admission procedure to elucidate the level of prior knowledge and to decide about the possible Program Specialization, which is chosen according to the applicant's preference and the opinion of the interviewing professors. The interview can partially be carried out by distant methods such as by electronic media and postal service. The final decision on the Program Specialization, tutor, thesis work and other details is, however, made after a personal meeting and discussion with the applicant. For general information on application see "*Application and admission procedure*".

- **Documents to be enclosed** to the application form: in addition to the application form, and the documents that are generally needed (see for these "*The application form*" and "*Application and admission procedure*") the applicant should provide her/his **B.Sc. degree** and documents about her/his **earlier studies and accomplishments**. These should be either originals or attested copies in English, or authorized English translations. A letter of recommendation in English from a former teacher is very welcome, though it is not prerequisite for the application.

- **Features of the program**

- **Objectives** Students participate in intensive **advanced and high level courses** in the different fields of biology, which are the most relevant for their specialization, to make

them informed about the recent developments and frontline problems. Some **60 % of time is practical hours** (spent on laboratory/field practice and on research) ensuring knowledge of state of the art methods. M.Sc. graduates will be able to participate creatively in research projects, to recognize and handle complex problems through multi-sided approach in planning and performing experiments. The knowledge obtained in the M.Sc. program forms an excellent basis that is necessary for studies in a Ph.D. program.

▪ **Duration** For students with B.Sc. degree the minimum duration of the M.Sc. program is four semesters. However, according to our experience, **six semesters** are normally needed to get the M.Sc. degree because the applicants' prior B.Sc. studies are different in both their curriculum and level from those of the B.Sc. program at Eötvös Loránd University (please visit "<http://bio.elte.hu/engedu/>") making it necessary to complete a two-semester catch-up program. The curriculum of this two-semester program depends on the chosen M.Sc. Program Specialization as well as on the applicant's prior studies and knowledge in the chosen special field.

▪ **Curriculum** The curriculum is assembled from **intensive advanced level courses** on the theoretical aspects of selected disciplines and **special seminar series** on problems in a narrower field of science. The program also involves practical courses and a supervised research activity, which is needed for the preparation of the "M.Sc. Thesis". Four program specializations are possible, with several sub-specializations within each (for these, visit "<http://bio.elte.hu/engedu/>"). Students enroll in one of these according to their interest. With choosing a Program Specialization, students also choose the field in which they will make their M.Sc. thesis work. For succeeding the program, students must collect a **total of 108 credits** for courses with examinations, for practical training (if they receive for these at least a passing grade - for the credit system and grading see "*System of evaluation of students' performance*"), and for the thesis work. During their program, students have to earn **48 credits** for compulsory and optional **courses** of the appropriate Program Specialization as well as for freely chosen courses and seminar series including those of other Program Specializations. Further **60 credits** have to be earned **for the M.Sc. thesis work**. For the available courses and their credit "values" visit "<http://bio.elte.hu/engedu/>"

Note: The curriculum of a Program (sub-) Specialization might be supplemented with a curriculum of a catch-up program, which is assembled according to the special needs of the student.

▪ **Thesis work** During their thesis work, students **join a research group** preferably in a department of the University, but research groups in other universities or laboratories can also be chosen. Students have their own research project, which they work on under the supervision of a project leader. Project leaders usually also act as tutors, who are responsible for the progress of the students and for giving advice in assembling a personal curriculum for them. When students work on their thesis in laboratories outside the university, the tutor, who is always from the University, is different from the project leader. To obtain their M.Sc. degree, candidates have to write and orally present a "M.Sc. Thesis", which involves i.) A summary of their own research work and ii.) An up-to-date critical review of the relevant scientific literature. A committee from teachers in the biology program will evaluate the „M.Sc. Thesis”.

- **Program head:** Miklós Sass D.Sc. professor
- **Program coordinator to be contacted:** István Venekei Ph.D. associate professor (venekei@elte.hu)

◆ **Ph.D. programs - in the Doctorate School in Biology**

● **Criteria of application and admission:**

The successful applicant must have a **M.Sc. degree in Biology** (or in a special field of biology), and a good command of English. On an interview by tutors in the chosen program, the applicant will be asked about her/his prior studies, M.Sc. thesis work, motivation, theoretical knowledge, and practical-methodological experience, which might be relevant for her/his selected Ph.D. research project. The acceptance is followed by a consultation to assemble a Ph.D. research project for the student. For further information on application see “*Application and admission procedure*”.

▪ **Documents to be enclosed** to the application form: In addition to the application form, and the documents that are generally needed (see for these “*The application form*” and “*Application and admission procedure*”) the applicant should provide her/his **M.Sc. degree** and documents about her/his **earlier studies and accomplishments**. These should be either originals or attested copies in English, or authorized English translations. A letter of recommendation in English from a former principal investigator is welcome, though it is not prerequisite for the application.

● **Features of the program**

▪ **Duration** Minimally six semesters (three years).

▪ **Objectives** Except for the purely theoretical topics the programs are practice oriented: **90% of time is laboratory/field research**. The special, one-semester courses and seminar series are organized on current scientific problems to deepen students’ knowledge on the theoretical background of their research project and the methods that they are using. Emphasis is also put on developing skills in publication (writing papers), in preparing grant application and in project management. Thus Ph.D. graduates will be able to pursue their own research project independently and to organize and supervise their own research group.

▪ **Curriculum** For succeeding a program, candidate must have 180 credits, which can be earned for performance in the theoretical (16 credits) and the practical training.

In the theoretical part of their program, Ph.D. students have their own curriculum assembled from the permanent and temporary courses and seminar series, which are organized and announced yearly. After these, students prepare written and/or oral reports about selected topics of a course or a seminar series thorough reviewing literature. They can get help in this by (regular) consultations with the lecturer. Credit of the course or seminar series is earned if the lecturer finds the report acceptable and rates it at least as passing. (For credit system and grading see “*System of evaluation of students’ performance*”.)

As their practical program, Ph.D. students have a research project. They work under the supervision of principal investigators (who have Ph.D., and are mostly professors or associate professors). An important criterion of obtaining a Ph.D. degree is authorship in two scientific papers, written from candidate’s work and published in international journals. The candidate must be first author on at least one of the papers.

As the culmination of the Ph.D. program, the candidate must go through a “Ph.D. procedure”. This involves: 1) an examination by a committee about topics in two selected fields of science; 2) writing and orally presenting a “Ph.D. Thesis”, which summarizes the results of candidate’s research work. Two independent referees (experts of the field) will

review the “Ph.D. Thesis” and a committee from both teachers of the program and independent experts will evaluate the oral presentation, which is followed by an open discussion of thesis work. The performance of the candidate during the “Ph.D. procedure” will determine the quality of her/his Ph.D. degree. (For rating the performance and Ph.D. degree qualification see “*System of evaluation of students’ performance*”.)

▪ **List of the Ph.D. programs** Ten Ph.D. programs are presently available in biology. More than 100 research projects are associated to these programs in both the departments of Eötvös Loránd University and in other research institutions outside the University. These are funded financially by a number of various sources, for example by the National Research Foundation, the Hungarian Academy of Sciences and, in the case of international research collaborations, by various European and American grants. The programs are the following:

- **Theoretical Biology and Ecology**
 - **Ethology**
 - **Immunology**
 - **Experimental Plant Biology**
 - **Classical, Molecular and Evolutionary genetics**
 - **Molecular Cell and Neurobiology**
 - **Neuroscience and Human Biology**
 - **Structural Biochemistry**
 - **Zoo taxonomy, Animal Ecology and Hydrobiology**
 - **Evolutionary Genetics, Evolutionary Ecology and Conservation Biology**
- **Program head:** Anna Erdei D.Sc. professor (MHAS)
 - **Program coordinator to be contacted:** János Matkó D.Sc. professor (matko@elte.hu)

◆ **Part-time education - special seminar series, one-time and tailor-made courses**

Various extracurricular one-time courses and special seminar series can be organized on different topics **upon request**. These can be assembled from selected courses of the particular programs. In addition **we offer** tailor-made courses to serve the needs of professionals without prior academic background in biology (e.g. who have BA or MA in business, communication, law etc...), who want to understand and get acquainted with the exciting new developments in biology in a nutshell. (For further information contact Erika Tóth assistant professor – totherika@caesar.elte.hu). The one-time courses can be one or two semesters long, while seminar series are from several weeks up-to one semester, tailor-made courses are organized according to needs. A completed course is acknowledged by a **certificate** (see the “*Issuing diplomas and certificates*”).

◆ **System of evaluation of students' performance**

● **Credit system**

The credit system is **in accordance with the European Credit Transfer System**. One credit, as a rule, is the equivalent to one hour per week of study throughout a semester (~15 weeks). Students can earn credits by passing an (retaken) examination or successfully completing a practical course. The value of credit is independent of the grade if the latter is better than “fail” or “unacceptable” (see for grades below). The students have some flexibility to make their own tuition program for a semester. However, this opportunity is not without limit, because prior finishing of courses might be a requirement of the enrollment to others. (For the credit values of courses and course enrollment requirements see the curriculum of programs.)

● **Grades for rating performance**

Students' performance on examinations and at the end of practical courses is rated by grades in a **five-scale system** as follows: 5 (excellent), 4 (good), 3 (fair, satisfactory), 2 (passing, acceptable), 1 (fail, unacceptable). The passing grades are 2-5. Credits can be earned only with passing grades but the value of these does not influence the value of the credit (see above).

● **Evaluation in the “Ph.D. procedure”**

Candidates' performance on the examination is rated on the **five-scale grade system** (above), while the evaluation of the “Ph.D. Thesis” by reviewers and of the oral presentation by a committee applies a **four-scale system**, which is the same used for the final qualification of the Ph.D. degree itself: “**Summa cum laude**” (excellent), “**Cum laude**” (good), “**Rite**” (satisfactory), “**Insufficiente**” (unsatisfactory). In the latter case, the “Ph.D. procedure” is not successful the degree cannot be awarded.

◆ **Issuing diplomas and certificates**

Diplomas (B.Sc., M.Sc. and Ph.D. degrees) are issued after successful completion of a program, i.e. when all of the criteria are met. These include i.) Earning the required number of credits, and ii.) Writing and acceptance of a Thesis.

Certificates are issued after finishing a one-time course or a special seminar series. When a course has credit, earning the credit is prerequisite of issuing the certificate (see the “*System of evaluation of students' performance*”).

◆ **Conditions of teaching**

● **The academic year**

As a rule the academic year starts in the first week of September and ends in the first or second week of July, it is organized in two semesters.* The first semester ends and the second begins in the first week of February. At the end of each semester there is a 5-6 week period, reserved only for examinations and consultations (if requested). In each of the semesters there is a week void of tuition. (*The exact dates can change slightly from year to year.)

● **Teachers**

The 130 permanent participants of teaching biology are enthusiastic practitioners of their profession. Eighty percent of the teachers have Ph.D. degree and several years of international experience in research and teaching. In addition to their dedication to teaching, each of them has intensive research activity of their own, and many of them as renowned participants of international research collaborations.

● **Facilities**

Departments: The thirteen departments of the Biology Institute are responsible for teaching the different fields of biology on the new science campus of Eötvös Loránd University. They are located in the Biology Building, where five, modern lecture halls, numerous seminar rooms and well-equipped laboratories ensure excellent conditions for teaching in each department. (To take a short “*Virtual tour in the Biology Building*” please visit the web-site <http://bio.elte.hu/engedu/> !)

Libraries: There are ten large collections on the campus of the Faculty of Natural Sciences, which are specialized to different sciences. The collection of the library in the Biology Institute possesses more than 100,000 volumes of books and journals. Students are free to use these as well as the volumes in the nine other libraries, the central library of Eötvös Loránd University and the smaller libraries of the different departments.

Photocopying and computer centers with access to the **Internet** are available for students. Each registered student is entitled to an e-mail account.

Sport facilities: The University has a wide range of sport facilities including swimming pools, various sports grounds, tennis courts and running tracks.

Student organizations: Student representatives are present in all decision-making bodies at departmental, institution, faculty and university level. The Student Association arranges all kinds of cultural, sporting and leisure programs, and also organizes meetings for foreign students. All enrolled students are entitled to participate in these programs and associations.

For viewing “*Snapshots of life of the biology students*” please visit the web-site <http://bio.elte.hu/engedu/> !

◆ Living in Budapest

Budapest, the capital city of Hungary, is situated on the scenic banks of the Danube. It has a rich and bustling cultural life. Its famous museums house many permanent and temporary exhibitions of Hungarian and European cultural treasures. Large libraries, concert halls, two opera houses, more than thirty theaters, numerous movie theaters, excellent clubs, restaurants and coffee shops provide endless opportunities for spending your spare time. (For “*Views of Budapest*” - as seen by our students please visit the web-site <http://bio.elte.hu/engedu/>.)

◆ Hungary in the heart of Europe

Hungarians migrated to Central Europe from the East and established a Christian kingdom more than 1000 years ago. Over its long and turbulent history, Hungary has quickly integrated into Europe, while developed and retained its own special character. It has a great cultural and educational past, and so far has given 14 Nobel Prize laureates to the world. Hungarian people traditionally appreciate different cultures and have a friendly attitude towards visitors from other nations. Today, Hungary is one of the new members of the European Union. The spectacular landscapes of the country and its numerous nature reserves with rich wildlife, many of which are on UNESCO’s “The World’s Natural and Cultural Heritage” list, the folklore and old customs, which are still alive in many places, are all interesting to visitors and residents alike. The geographic location of Hungary offers excellent possibilities to visit many nice and famous cities of other Central European countries, as well as to make ski trips to the high mountains of the Alps and Carpathians, or to enjoy the beautiful shore of the Adriatic Sea.

(For several “*Pictures of the country*” please visit the web-site <http://bio.elte.hu/engedu/>)

(For a longer virtual tour in Hungary and in Budapest please visit the web-sites: www.panoramas.hu and www.budapest.hu)