Science and Technology
Bachelor of Science

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HEAD OF INTERNATIONAL MARKETING

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### Programme details

<table>
<thead>
<tr>
<th>Title</th>
<th>Science and Technology</th>
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</thead>
<tbody>
<tr>
<td>Level</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Degree</td>
<td>Bachelor of Science</td>
</tr>
<tr>
<td>Language</td>
<td>English</td>
</tr>
<tr>
<td>Duration</td>
<td>3 years</td>
</tr>
<tr>
<td>Credits</td>
<td>180 ECTS</td>
</tr>
<tr>
<td>Study form</td>
<td>Full-time regular studies</td>
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<tr>
<td>Tuition fee</td>
<td>3740 EUR/year</td>
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<tr>
<td>Study places</td>
<td>35</td>
</tr>
<tr>
<td>Scholarships</td>
<td>5 tuition waivers</td>
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</table>
Why Science and Technology?

**A broad education** in natural and exact sciences and technologies

You **do not have to choose a specialisation right away**: try out different fields and make your choice in the second year.

**Wide range of study-related extracurricular activities**, incl. participation in Estonia’s first student satellite project ESTCube and international genetics competition iGEM.

Graduates have an option to continue studies in any natural science or work for technology companies.
Current students

- 97 students:
  - 76 international students
  - 21 Estonians

International students are from USA, United Arab Emirates, Azerbaijan, Bangladesh, Brazil, Bulgaria, Egypt, Ghana, Georgia, China, India, Cameron, Canada, Kazahstan, Latvia, Mauritius, Mexico, Montenegro, Nigeria, Saudi Arabia, Finland, Turkey, Ukraine, Uzbekistan, Belarus, Russia and Vietnam.
**Curriculum structure (120 ECTS)**

<table>
<thead>
<tr>
<th>Obligatory Base Modules (48 ECTS)</th>
<th>Narrow Field Module (24 ECTS)</th>
<th>Specialisation Modules (72 ECTS)</th>
<th>Electives &amp; Optional Courses</th>
<th>Bachelor’s Thesis (12 ECTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Base Module 1 (24 ECTS)</td>
<td>• Systems Biology (4 ECTS)</td>
<td>• Genetics and Biotechnology 1, 2 and 3 (72 ECTS)</td>
<td>• Elective Module (12 ECTS)</td>
<td></td>
</tr>
<tr>
<td>• Base Module 2 (24 ECTS)</td>
<td>• Biochemistry (6 ECTS)</td>
<td>• Bioengineering and Robotics 1, 2 and 3 (72 ECTS)</td>
<td>• Optional Courses (12 ECTS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Genetics (6 ECTS)</td>
<td>• Chemistry and Material Science 1,2 and 3 (72 ECTS)</td>
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<tr>
<td></td>
<td>• Basics of Electronics (5 ECTS)</td>
<td>• Probability Theory and Statistics 1 (3 ECTS)</td>
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<td></td>
<td>• Probability Theory and Statistics 1 (3 ECTS)</td>
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</tbody>
</table>
Obligatory Base Modules

Base module 1
- Higher Mathematics (6 ECTS)
- Physics and Engineering (6 ECTS)
- Chemical Principles (6 ECTS)
- Programming (3 ECTS)
- Organic Chemistry (3 ECTS)

Base module 2
- Introductory Laboratory Course (6 ECTS)
- Evolution and the Natural World (6 ECTS)
- Molecular Biology (6 ECTS)
- Introduction to Analytical Programming (6 ECTS)
# Genetics and Biotechnology

## Genetics and Biotechnology 1
- Microbiology (6 ECTS)
- Cell Biology (6 ECTS)
- Biotechnology (6 ECTS)
- Bioinformatics and Genomics (6 ECTS)

## Genetics and Biotechnology 2
- Plant Physiology (3 ECTS)
- Microbiology/Virology Practicum (6 ECTS)
- Genetics Practicum (6 ECTS)
- Biochemistry/Plant Physiology Practicum (6 ECTS)
- Cell Biology Practicum (3 ECTS)

## Genetics and Biotechnology 3
- Biotechnology Practicum (6 ECTS)
- Developmental Biology (6 ECTS)
- Evolutionary Processes (6 ECTS)
- Bio-enterprise (6 ECTS)
# Bioengineering and Robotics

<table>
<thead>
<tr>
<th>Bioengineering and Robotics 1</th>
<th>Bioengineering and Robotics 2</th>
<th>Bioengineering and Robotics 3</th>
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</thead>
<tbody>
<tr>
<td>• Electrical Measurements (6 ECTS)</td>
<td>• Robotics (6 ECTS)</td>
<td>• Digital Signal Processing (6 ECTS)</td>
</tr>
<tr>
<td>• Biomolecular Catalysis and Signaling (6 ECTS)</td>
<td>• Robotics Lab (6 ECTS)</td>
<td>• Biomedical Engineering (3 ECTS)</td>
</tr>
<tr>
<td>• Applied Synthetic Biology (6 ECTS)</td>
<td>• Molecular Systems Biology (4 ECTS)</td>
<td>• Control Systems Engineering (3 ECTS)</td>
</tr>
<tr>
<td>• Synthetic Biology Lab (6 ECTS)</td>
<td>• Systems Modeling (4 ECTS)</td>
<td>• Biomechanical Engineering (6 ECTS)</td>
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<tr>
<td></td>
<td>• Physiology (4 ECTS)</td>
<td>• Digital Image Processing (6 ECTS)</td>
</tr>
</tbody>
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## Chemistry and Materials Science

<table>
<thead>
<tr>
<th>Science 1</th>
<th>Science 2</th>
<th>Science 3</th>
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<tbody>
<tr>
<td>• Inorganic Chemistry (6 ECTS)</td>
<td>• Computational Chemistry (3 ECTS)</td>
<td>• Industrial Heterogeneous Catalysis (3 ECTS)</td>
</tr>
<tr>
<td>• Physical Chemistry (6 ECTS)</td>
<td>• Bioorganic Chemistry (3 ECTS)</td>
<td>• Environmental Chemistry (3 ECTS)</td>
</tr>
<tr>
<td>• Material Science (6 ECTS)</td>
<td>• Electrochemistry (3 ECTS)</td>
<td>• Chromatography (3 ECTS)</td>
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<tr>
<td>• Analytical Chemistry (6 ECTS)</td>
<td>• Colloid and Surface Chemistry (3 ECTS)</td>
<td>• Spectroscopy (3 ECTS)</td>
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<td>• Physical Material Technologies (3 ECTS)</td>
<td>• Structure of Matter (Structure of Material) (3 ECTS)</td>
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<td>• Structural Analysis (3 ECTS)</td>
<td>• Thin Film Technology (3 ECTS)</td>
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<td></td>
<td>• Practical Work in Organic Chemistry (3 ECTS)</td>
<td>• Measuring and Instrumentation (6 ECTS)</td>
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</tbody>
</table>
Extracurricular activities

- Science Theatre
- Robotics Club
- Student satellite ESTCube
- iGEM - largest worldwide synthetic biology competition for students
- Maybe your own company? 😊
Deadlines

**International students:**
- Application period: Jan 2 – April 15
- Results: June 15

**Estonian students:**
- Application period: Feb 1 – April 15
- Results: June 15
Admission details

- **Entry requirements:**
  - secondary education (must be obtained by the end of July)
  - English language proficiency

- **Admission score:**
  - state exam result/final grade in Mathematics (40%)
  - state exam result/final grade in either Biology, Chemistry or Physics – highest result will be considered (40%)
  - score of the motivation letter (20%)
Application process

International students:
1. Submit the online application
2. Send documents by post if you are accepted or if it’s required by the university

Estonian students:
1. Online application in SAIS
Documents to submit

**International students:**
1. online application
2. motivation letter
3. official copy of the secondary school certificate and grade list in the original language (must include description of the grading scale)
4. official translation of the secondary school certificate and grade list into English, translation certified
5. proof of English language proficiency
6. copy of the passport page stating the applicant’s personal particulars
7. confirmation/receipt of application fee payment (50 EUR)

**Estonian students:**
1. motivation letter
2. proof of English language proficiency

NB! If you graduate after the deadline – you must submit your latest results from high school.
English tests

1. **TOEFL (iBT)** – min 75, the report must be sent to the University of Tartu directly from the Educational Testing Service.

2. **IELTS (academic)** – min 5.5 and no part can be below 5.5. Copy of the test result is accepted as it will be verified online by the university.

3. **Cambridge English**: First (FCE) – min 160; Advanced (CAE) or Proficiency (CPE)

4. **Pearson Test of English Academic (PTE Academic)** – min 59

5. **Finnish ylioppilastutkinto In English**, long course – graded at least magna cum laude approbatur (M) 5

6. **English language test offered by the University of Tartu.** Minimum B2 level is required.

7. **Estonian state exam in English** – minimum required result is B2 level (for exams taken in 1997-2013 66 points or higher).

8. **Russian Federation’s state exam in English (edinõi gosudarstvennõi eksamen)** – minimum required score is 75 points
Motivation letter

• In English, maximum of 4 600 characters with spaces
• Describe the following points:
  ➢ Which of the three specialisations interests you most and why?
  ➢ Which elective courses would you like to take?
  ➢ Why are you particularly interested in this Science and Technology bachelor’s programme?
  ➢ In which role do you see yourself in your future job after completion of the programme and what is your personal motivation to study Science and Technology?
  ➢ How do you plan to implement the skills to be gained from the programme in your future career?
• Evaluation criteria:
  ➢ fit between the student’s goals and the programme (40 %)
  ➢ analytical and argumentation skills (40 %)
  ➢ fluency of written English (20 %)
See you in autumn 2019!
tartuuniversity
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