DOCTOR OF PHILOSOPHY (PHD) DEGREE IN THE FIELD OF BIOENGINEERING

Program Learning Outcomes for the MS and PhD Degrees in the field of Bioengineering

Upon completing the MS and PhD degrees in the field of Bioengineering, students will be able to:

1. Acquire a graduate-level understanding of foundations in Bioengineering and apply this material across a variety of sub-disciplines.
2. Integrate knowledge from different sources to solve a defined Bioengineering problem.
3. Acquire deep knowledge in a sub-discipline in which they will pursue their thesis.
4. Demonstrate professional skills in both oral and written communication.

Requirements for the MS and PhD Degrees in the field of Bioengineering

**MS Degree Program**

The MS degree is a thesis master’s degree. For general university requirements, please see [Thesis Master’s Degrees](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the MS degree in the field of Bioengineering must complete:

- A minimum of 30 credit hours to satisfy degree requirements. MS students must earn additional credits they need for graduation by registering for the research course BIOE 500 during the terms they are engaged in research.
- A minimum of 18 credit hours from foundation, supporting, and advanced courses.
- A minimum GPA of 3.00.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of a class in systems physiology, cell (or physical) biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the MS program.)
- Fulfill a teaching requirement.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.

**PhD Degree Program**

For general university requirements, please see [Doctoral Degrees](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the PhD degree in the field of Bioengineering must complete:

- A minimum of 90 credit hours to satisfy degree requirements. In addition to foundation, PhD students must earn additional credits they need for graduation by registering for the PhD research course, BIOE 500, during the terms they are engaged in research.
- A minimum of 30 credit hours from foundation, supporting, and advanced courses with high standing.
- A minimum GPA of 3.20.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of a class in systems physiology, cell (or physical) biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the PhD program.)
- Students are required to serve as a teaching assistant in up to three undergraduate or graduate courses.
- Submit a thesis proposal. PhD students must submit and successfully defend their thesis proposals by the end of their fourth semester in residence.
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of bioengineering.
- Defend the thesis in a public oral examination.

Graduate students take required courses and electives in the following areas:

- Biomaterials
- Tissue Engineering
- Mechanobiology and Biophysics
- Biomedical Imaging
- Optics and Diagnostics
- Microfabrication
- Microfluidics and Design
- Synthetic Biology and Genome Engineering
- Quantitative, Computational and Theoretical Bioengineering
Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Bioengineering</td>
<td>90</td>
</tr>
</tbody>
</table>

**Policies for the PhD Degree in the field of Bioengineering**

**Department of Bioengineering Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Bioengineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2020_21/Bioengineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2020_21/Bioengineering_Graduate_Handbook.pdf)

**Admissions**

To make sure scores are available when admission decisions are made, applicants need to register to take the GRE and, if an international student, the TOEFL at least three months before the application deadline. Applicants should also request transcripts at least two months in advance to give senders time to get the material to Rice University by the deadline. The application deadline for MBE students for spring admission the following year is October 30th. The application deadline for MBE students for fall admission in the same year is April 30th. The application deadline for PhD students for fall admission of the following year is December 20th. PhD students are not admitted in the spring semester. Application materials received after the deadline will not be considered. Once admitted, departmental policy requires full-time PhD students to be registered for at least 12 credit hours each semester. MBE students in the Applied Bioengineering area of specialization may register part-time with the permission of the department. MBE students in the Global Medical Innovation area of specialization are expected to attend full-time.

**Additional Information**

For additional information, please see the Bioengineering website: [https://bioengineering.rice.edu/](https://bioengineering.rice.edu/)

**Opportunities for the PhD Degree in the field of Bioengineering**

**Additional Information**

For additional information, please see the Bioengineering website: [https://bioengineering.rice.edu/](https://bioengineering.rice.edu/)