Biomedical Engineering, Ph.D.

Graduate study in biomedical engineering prepares students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student’s course of study is based on individual background and career objectives, and sound academic practice.

An individual program for each student may be developed from courses offered by the Department of Biomedical Engineering and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. Faculty members in the department have teaching and research expertise in cardiovascular and fluid biomechanics, musculoskeletal biomechanics, biomaterials and tissue engineering, bioinstrumentation, biosystems, biomedical imaging, biological signal analysis, bioinformatics and computational biology, and other allied fields.

Ph.D. programs may center on any one of the previously described areas through the choice of appropriate course work and research topic.

Requirements

The Doctor of Philosophy program in biomedical engineering requires a minimum of 72 s.h. of graduate work, including acceptable transfer credit. At least 42 s.h. must be earned in formal course work taken after the B.S. is awarded, and at least 12 s.h. must be earned for research and the thesis. Students who enter with an M.S. may count a maximum of 33 s.h. of approved transfer credit toward the Ph.D., but they must earn 39 s.h. of graduate credit at the University of Iowa, including at least 12 s.h. for research and the thesis. Based on a student’s research progress, examination results, or other measures, the graduate committee may require additional formal course work to strengthen perceived areas of weakness.

Ph.D. students with a major in biomedical engineering must complete the following courses or their equivalents.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOS:4120</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT:3510</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>ENGR:7270</td>
<td>Engineering Ethics</td>
<td>1</td>
</tr>
<tr>
<td>HHP:3500</td>
<td>Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>ME:5113</td>
<td>Mathematical Methods in Engineering (or equivalent math course numbered 3000 or above)</td>
<td>3</td>
</tr>
</tbody>
</table>

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination. The biomedical engineering faculty administers the exam and decides whether a student’s performance on it is adequate for admission to the Ph.D. program.

Admission to Ph.D. candidacy requires a g.p.a. of at least 3.00 on all graduate work at the University of Iowa. Upon completion of the course work specified in the plan of study and with the required grade-point average and the advisor’s recommendation, students are admitted to the comprehensive examination by their committee.

Having satisfactorily completed these examinations, students usually have only to complete and defend their dissertation at the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master’s degree.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College.

Reference letters, research interests, previous graduate grade-point average, and other factors may be considered in admission decisions.

Admission to the Doctor of Philosophy in biomedical engineering is conditional until students successfully complete a qualifying examination.

Financial Support

Biomedical engineering graduate students receive financial support through a combination of research and teaching assistantships and fellowships. Decisions about research and teaching assistantships are made by individual faculty members. Questions about the availability of financial support should be addressed directly to faculty members in a student’s primary area of study.

Career Advancement

The Graduate College at the University of Iowa offers numerous career advancement opportunities and professional development programs for graduate students. Ongoing program offerings, news, and announcements can be found under Professional Development on the Graduate College website.