BIOMECHANICS GRADUATE CONCENTRATION

For the graduate concentration in Biomechanics

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director of graduate studies: Gregory Underhill (bodony@illinois.edu)
overview of grad college admissions & requirements: https://grad.illinois.edu/admissions/apply
department website: https://bioengineering.illinois.edu/
program website: https://bioengineering.illinois.edu/academics/graduate/phd/concentrations.html
department faculty: https://bioengineering.illinois.edu/directory/
college website: https://grainger.illinois.edu/
contact: Krista Smith (kristasm@illinois.edu)
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phone: (217) 333-1867
email: bioe-gradprograms@illinois.edu
(bioengineering@illinois.edu)

The Biomechanics Concentration prepares students for collaborative research across the disciplines of engineering, biology, and the sciences. Students must be enrolled in a graduate degree program:

Bioengineering, MS (http://catalog.illinois.edu/graduate/engineering/bioengineering-ms)
Bioengineering, PhD (http://catalog.illinois.edu/graduate/engineering/bioengineering-phd)
Bioinformatics: Bioengineering, MS (http://catalog.illinois.edu/graduate/engineering/bioinformatics)
Electrical & Computer Engineering, MS (http://catalog.illinois.edu/graduate/engineering/electrical-computer-engineering-ms)
Electrical & Computer Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/electrical-computer-engineering-phd)
Materials Engineering, MEng (http://catalog.illinois.edu/graduate/engineering/materials-engineering-meng)
Materials Science & Engineering, MS (http://catalog.illinois.edu/graduate/engineering/materials-science-engineering-ms)
Materials Science & Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/materials-science-engineering-phd)
Mechanical Engineering, MS (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-ms)
Mechanical Engineering, MEng (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-meng)
Mechanical Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-phd)
Theoretical & Applied Mechanics, MS (http://catalog.illinois.edu/graduate/engineering/theoretical-applied-mechanics-ms)
Theoretical & Applied Mechanics, PhD (http://catalog.illinois.edu/graduate/engineering/theoretical-applied-mechanics-phd)

Other Graduate Programs in the Department of Bioengineering
degrees:

Bioengineering, MEng (http://catalog.illinois.edu/graduate/engineering/bioengineering-meng)
concentrations:
  Bioinstrumentation (http://catalog.illinois.edu/graduate/engineering/bioengineering-meng/bioinstrumentation)
  Computational Genomics (http://catalog.illinois.edu/graduate/engineering/bioengineering-meng/computational-genomics)
  General Bioengineering (http://catalog.illinois.edu/graduate/engineering/bioengineering-meng/general-bioengineering)
Bioengineering, MS (http://catalog.illinois.edu/graduate/engineering/bioengineering-ms)
optional concentrations:
  Biomechanics (p. 1)
  Cancer Nanotechnology (http://catalog.illinois.edu/graduate/engineering/concentration/cancer-nanotechnology)
Bioengineering, PhD (http://catalog.illinois.edu/graduate/engineering/bioengineering-phd)
optional concentrations:
  Biomechanics (p. 1)
  Cancer Nanotechnology (http://catalog.illinois.edu/graduate/engineering/concentration/cancer-nanotechnology)
  Computational Science and Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering)

concentrations:

Information listed in this catalog is current as of 05/2020
Cancer Nanotechnology (http://catalog.illinois.edu/graduate/engineering/concentration/cancer-nanotechnology) available for:

| Bioengineering, MS (http://catalog.illinois.edu/graduate/engineering/bioengineering-ms) | Bioengineering, PhD (http://catalog.illinois.edu/graduate/engineering/bioengineering-phd) | Bioinformatics: Bioengineering, MS (http://catalog.illinois.edu/graduate/engineering/bioinformatics)| Electrical & Computer Engineering, MS (http://catalog.illinois.edu/graduate/engineering/electrical-computer-engineering-ms) | Electrical & Computer Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/electrical-computer-engineering-phd) | Materials Engineering, MEng (http://catalog.illinois.edu/graduate/engineering/materials-engineering-meng) | Materials Science & Engineering, MS (http://catalog.illinois.edu/graduate/engineering/materials-science-engineering-ms) | Materials Science & Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/materials-science-engineering-phd) | Mechanical Engineering, MEng (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-meng) | Mechanical Engineering, MEng (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-meng) | Mechanical Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/mechanical-engineering-phd) | Theoretical & Applied Mechanics, MS (http://catalog.illinois.edu/graduate/engineering/theoretical-applied-mechanics-ms) | Theoretical & Applied Mechanics, PhD (http://catalog.illinois.edu/graduate/engineering/theoretical-applied-mechanics-phd) |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|

The Department of Bioengineering offers studies leading to the Master of Engineering in Bioengineering (MEng), the Master of Science in Bioengineering (MS), and the Doctor of Philosophy (PhD) in Bioengineering. The Bioengineering Graduate Program provides students with educational and research experiences that integrate the sciences of biology and medicine with the practices and principles of engineering. For the MS and PhD programs, areas of focus include Bioimaging, Cell & Tissue Engineering, Micro and Molecular Technologies, and Computational Biology.

Opportunity also exists for specializing in energy and sustainability engineering via the Energy and Sustainability Engineering (EaSE) Graduate Certificate Option (http://ease.illinois.edu)

For the Biomechanics Graduate Concentration

The Biomechanics Concentration requires students to earn a B or better in each concentration course and complete at least 12 hours. Fulfillment of these requirements will be monitored jointly by the graduate coordinators in Bioengineering and in Mechanical Science and Engineering.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ABE 446</td>
<td>Biological Nanoengineering</td>
<td></td>
</tr>
<tr>
<td>BIOE 482</td>
<td>Musculoskel Tissue Mechanics</td>
<td></td>
</tr>
<tr>
<td>ME 483</td>
<td>Mechanobiology</td>
<td></td>
</tr>
<tr>
<td>MSE 474</td>
<td>Biomaterials and Nanomedicine</td>
<td></td>
</tr>
<tr>
<td>PHYS 550</td>
<td>Biomolecular Physics</td>
<td></td>
</tr>
<tr>
<td>TAM 461</td>
<td>Cellular Biomechanics</td>
<td></td>
</tr>
</tbody>
</table>

Alternate courses may be applicable to the Biomechanics Concentration pending joint approval by the Bioengineering and Mechanical Science and Engineering Graduate Programs.

Total hours required for the concentration: 12

Requirement | Description |
<table>
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<tr>
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<tbody>
<tr>
<td>Courses taken toward this concentration will count toward the student’s graduate degree.</td>
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<tr>
<td>Students must notify their department of their plan to pursue this concentration.</td>
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<tr>
<td>When choosing courses, students must work directly with their department to ensure that all degree requirements will be met.</td>
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<tr>
<td>Note that students who intend to complete both a Biomechanics Concentration and a Cancer Nanotechnology Concentration may only overlap one course between the two concentrations.</td>
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</tr>
</tbody>
</table>

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