Biomedical Engineering BS/MS Programs at WPI

May 7, 2020

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Frequently Asked Questions…

• Should I apply to the BS/MS program?
• What programs does WPI offer?
• Which one is right for me?
• Can I “double count” undergrad courses?
• Can I take grad courses as an undergrad?
• When should I apply?
• What is the application procedure?
• Other???
Why apply to the BS/MS program?

• Advanced courses beyond the BME BS degree
  – Business/management
  – FDA regulations
  – Quality control
  – Specialization/engineering depth (material science, robotics, manufacturing)

• Other advantages of Master’s degree?
  – Needed for some positions
  – Higher salary?
  – Management opportunities

• Advanced hands-on experience
  – Project-based or thesis-based Master’s
  – Integrated co-op or internship
This year specifically:

• Internship, co-op or job plans changed
• Spring athletes – eligibility
• Take advantage of summer courses
• WPI tuition incentives apply
  – Summer 2020 – 50% tuition discount for current WPI undergraduates for graduate and undergraduate courses.
    NOTE: May 2020 B.S. graduates not eligible
  – WPI alumni (including May 2020 B.S. graduates) receive 20% graduate tuition discount
WPI Master’s Degrees
Which program is right for me?

- **M.S. Thesis (30 credits)**
  - Independent research
  - Expected full-time work on thesis research
  - Time to completion varies, ~ 2 years beyond B.S. degree

- **M.S. Project (30 credits)**
  - Independent project (~ individual MQP)
  - Can complete project during co-op or internship
  - Completion based on credits v. research

- **M.Eng. (33 credits)**
  - Course-based Master’s
  - Completion based on credits/courses
Which program is right for me?

- **M.S. Project**
  - Since Fall 2018
  - Can be combined with a co-op or internship!
    - Eligible to register after 12 graduate credits completed
  - Short-term independent project
    - Design project (WPI faculty lab or industry)
    - Academic/design project related to co-op or internship
    - Clinical project
    - Continuation of MQP?
  - Can complete a project in one semester or longer
  - Students identify their own project and advisor; notify the BME department
Can I “double count” courses?

• YES!
  – Up to 30% of course credits **double count** (*9 credits total)
    • 6 credits of 4000-level courses (3 courses)
    • 3 credits of 500-level courses (1 course)
  – Additional *2 credits at 4000-level not counted for BS degree
    • Up to 8 credits total 4000-level
  – **9 credits double-counted + 2 credits = *11 credits**
  – No course can be triple counted (major, minor, grad)
  – BME 4300 and MQP do not count for graduate credit

• To “double-count” courses:
  – Fill out the “Course Designation Form” (Registrar’s website)

• Other grad courses (500-level) not needed for B.S. requirements **count directly** for graduate degree

**NOTE:** 1 grad credit = 1/6 unit undergrad; 2 grad credits = 1/3 unit undergrad
Can I take grad courses as an undergrad?

- Yes! BUT…
- Meet B.S. degree requirements first!!!
  - Some graduate courses DO NOT COUNT toward B.S. degree (e.g., BME 560, BME 562, BME 564)
  - Best to take graduate courses senior year
- Talk to your Academic Advisor!
  - Am I ready to take graduate courses?
  - How will it affect my schedule / time to graduation?
  - Only one graduate course (500-level) can count toward BME B.S. degree
## Master of Engineering (ME) Degree

- **ME (Course-based Master’s Degree)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME</td>
<td>12</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Math</td>
<td>3</td>
</tr>
<tr>
<td>Life Sciences or Advanced Math</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>BME 591: Graduate Seminar (x 2)</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

**NOTE:** 1 grad credit = 1/6 unit undergrad; 2 grad credits = 1/3 unit undergrad
# Master of Science (MS) Degrees

## MS (Thesis-based Master’s Degree)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME</td>
<td>12</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>BME 599 (MS Thesis)</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

In addition, the following requirements **must be met** for both Master of Science Degrees:

- Technical Depth Requirements: 15 credits
  - Seminar (must take BME 591) pass twice

- BME Core Competencies (5):
  - mathematics
  - life science
  - clinical needs analysis
  - regulation and controls
  - value creation, innovation, technology, commercialization
How do I register for graduate courses?

- There are two sections (CRNs) for each graduate course – one for undergraduates, one for graduate students (to preserve “seats” for incoming students)
- BME 562 – Laboratory Animal Surgery requires special permission
  - Must contact Ina Gjencaj(igjencaj@wpi.edu)
  - Email your name, student number and class year
- See BME section of the WPI Graduate Catalog for:
  - Course descriptions
  - List of courses that count toward competencies and Technical Depth
- Technical Depth lists are not exhaustive – new technical courses in Neuroscience (new program), Data Science, Robotics, etc. will be considered even if not on the catalog list
- NOTE: Summer courses are all online in 2020
Application and Admissions
What is the application procedure?

- Apply online through WPI Graduate Admissions
  - [http://www.wpi.edu/admissions/graduate.html](http://www.wpi.edu/admissions/graduate.html)
  - “Apply Now”
  - By July 1, 2020 (or ASAP)
- Required materials:
  - Transcript (automatically linked to application)
  - Personal statement
  - Three letters of recommendation
- GRE scores not required for WPI students/alumni
- Application fee waived for WPI students/alumni
Personal Statement

• Why are you applying to graduate school?

• Do you have any independent research or project experience? Tell us about it!

• Is there a specific faculty member or company you plan to work with for your M.S. thesis or project?

• What are your career goals/plans beyond graduate school?
Recommendation Letters

• WPI faculty, MQP advisor, internship supervisors
  – People who can tell us about your aptitude for independent research and advanced study
  – People who know you well
• Ask faculty who have written letters for you before – they are likely to one have ready and just need to update it
• WAIVE your right to access the review
• Give plenty of notice (at least two weeks)
  – Letter writer may want to meet with you or request a resume, other information
• Send a gentle reminder (if needed) before the due date
What are my chances of admission?

• Admitted M.S. and M.E. students typically have:
  – Strong letters of recommendation
  – Strong letters from MQP advisors and other BME faculty
  – Overall GPA ≥ 3.0
  – ≥ “B” grades in BME and engineering courses
  – Strong personal statement
  – Research or industry experience
Grades aren’t everything, but…

- Grades in advanced courses and MQP are indicators of your potential to succeed in graduate school
- Only courses with “B” grades or higher can “double count”
- We typically do not admit students w/ GPA < 3.0
- Graduate students must maintain ≥ 3.0 GPA
- Can have up to 2 courses with a C grade as long as cumulative Master’s GPA ≥ 3.0
- WPI academic probation and warning rules apply
- Courses with “P” grades from D term / Spring semester count for credit and do not factor in GPA
How many graduate courses should I take senior year?

• Most graduate courses (500-level) are:
  – 3 credits (some are 1 credit; e.g., journal club or BME 592: Healthcare Systems)
  – Semester-long (14 weeks)
  – Meet 1-2x / week (v. 4-5 times/week for 7 week classes)
  – Advanced – more independent learning expected
  – Usually meet evenings or online to accommodate students working full-time, or on co-op or internship
How many graduate courses should I take senior year?

- Example senior year schedule (if you only have 4000-level + courses and MQP left to finish B.S. degree):
  - One 3-credit graduate course summer before senior year
  - + Two 3-credit graduate courses/semester during senior year
    (12 credits; equivalent to six 1/3-unit courses, or two terms)
  - + Three 4000-level courses senior year + MQP (equivalent to six 1/3-unit courses, or two terms; 6 credits at 4000-level)
  - = 21 credits earned toward MS degree; no overloading
  - Take BME 591 each semester senior year
  - Take remaining 9-12 credits in one additional semester, or over summers
   (one 3 credit course summer after senior year, + 6 credits project w/ internship in fall semester = 30 credits = Project-based M.S. completed!). OR 12 credits course work summer and fall semester = M.Eng. completed!
  - Note – students report that taking a class in addition to full-time co-op and 6 credits of project is A LOT – recommend not taking more than 6 credits at most w/ internship or co-op
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BME Undergraduate Advising Canvas Site

- “Graduate Program Information” module (scroll down)
  - Slides of this presentation
  - FAQs re: BME BS/MS Program Application
  - BME graduate program site: wp.wpi.edu/bme/grad

- Check back for example BS/MS tracking documents and plans of study!
Questions?

BMEGradProgram@wpi.edu

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