Biomedical Engineering
BS/MS Programs at WPI

May 7, 2020

BME Department:  Prof. Marsha Rolle
                 BMEGradProgram@wpi.edu

WPI Graduate Admissions:  Mary Spencer, Agata Lajoie
                         grad@wpi.edu

Prof. Songbai Ji is interim Graduate Program Coordinator, AY 19-20
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

<table>
<thead>
<tr>
<th>MS (Thesis-based Master’s Degree)</th>
<th>MS (Project-based Master’s Degree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME</td>
<td>BME</td>
</tr>
<tr>
<td>12 credits</td>
<td>12 credits</td>
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<tr>
<td>Electives</td>
<td>Electives</td>
</tr>
<tr>
<td>12 credits</td>
<td>12 credits</td>
</tr>
<tr>
<td>BME 599 (MS Thesis)</td>
<td>BME 597 (MS Project)</td>
</tr>
<tr>
<td>6 credits</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>TOTAL:</strong></td>
</tr>
<tr>
<td><strong>30 credits</strong></td>
<td><strong>30 credits</strong></td>
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</tbody>
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*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 with 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

Ina Gjencaj
Graduate Program Administrative Assistant
igjencaj@wpi.edu