Graduate Programs by Degree

WPI offers graduate study leading to the master of science, master of engineering, master of mathematics for educators, master of business administration, and the doctor of philosophy degrees. Please see the list of programs on page 5 for details.

The schedule of courses over a period of time generally allows a student taking three or four courses per semester to complete the course requirements for most Master's degree programs in about two years. Students taking two courses per semester complete the course requirements for the master of science or engineering degrees in about three years, or the master of business administration degree in about four years.

The Doctor of Philosophy (Ph.D.) Programs*
Available in the following disciplines:
• Biochemistry
• Biotechnology
• Biomedical Engineering
• Chemical Engineering
• Chemistry
• Civil Engineering
• Computer Science
• Electrical and Computer Engineering
• Fire Protection Engineering
• Interdisciplinary Studies
• Learning Sciences and Technologies
• Manufacturing Engineering
• Materials Science and Engineering
• Mathematical Sciences
• Mechanical Engineering
• Physics
• Robotics Engineering
• Social Science and Policy Studies
*available only on a full-time basis

Master of Science (M.S.) Programs
Available, on a full-time and part-time basis, in the following disciplines:
• Applied Mathematics
• Applied Statistics
• Biochemistry*
• Bioinformatics and Computational Biology
• Biology/Biotechnology*
• Biomedical Engineering
• Chemical Engineering*
• Chemistry*
• Civil Engineering
• Computer Science
• – Specializing in Computer and Communications Networks (CCN)
• Construction Project Management
• Electrical and Computer Engineering
• Environmental Engineering
• Financial Mathematics
• Fire Protection Engineering
• Industrial Mathematics
• Information Technology
• Interactive Media & Game Development
• Interdisciplinary Studies
• – Impact Engineering
• – Manufacturing Engineering Management
• – Power Systems Management
• – Systems Modeling
• Learning Sciences and Technologies Management
• Marketing and Technological Innovation
• Manufacturing Engineering
• Materials Process Engineering
• Materials Science and Engineering
• Mechanical Engineering
• Operations Design and Leadership
• Physics
• Robotics Engineering
• System Dynamics
• Systems Engineering
*available only on a full-time basis

Master of Engineering (M.E.) Programs
Offered in:
• Biomedical Engineering
• Civil Engineering
• – Environmental Engineering
• – Master Builder Program
• Electrical and Computer Engineering

Master of Business Administration (M.B.A.) Program
Provides students with strategies for the successful application of technology to complex business environments. The degree requirements are described in this catalog and in a separate brochure available from the School of Business at 508-831-5218, or on the web at mgt.wpi.edu/Graduate/mbatech.html.

Master of Mathematics for Educators (M.M.E.) Program
WPI offers a Masters in Mathematics for Educators, a part-time program for teachers of mathematics at the middle school, secondary, and community college levels. Students in this program may earn a content-based degree afternoons and evenings while still teaching full time. Taught by professors of mathematics at WPI, the program is designed to permit the teachers to learn from professors’ research interests and includes an understanding of current developments in the field. Scholarship aid, which covers approximately 40% of the cost of tuition, is available to qualified participants. The MME degree may be used to satisfy the Massachusetts Professional License requirements, provided the person holds an Initial License.
**Combined Bachelor/Master’s Program**

**Introduction**  
WPI undergraduates can begin work on a graduate degree by enrolling in a combined Bachelor’s/Master’s program. This accelerated course of study allows students to obtain an MS degree after only five years of full-time work (i.e., typically one year after completion of the BS). Students often obtain the BS and MS in the same field or department, but with careful planning some students complete the combined BS/MS program in two different fields; the combination of a BS in Civil Engineering and an MS in Fire Protection Engineering is a common example. (Throughout this section, “MS” will be used to refer to all Master’s-level degrees; most students who complete the combined program obtain the MS).

**Planning Your Program**  
Because BS/MS students use some approved courses to satisfy the requirements of both degrees simultaneously, it is crucial for them to plan their curriculum early in their undergraduate career.

The specific course and MQP requirements for a BS/MS program are determined individually, so students should consult with their own advisor as well as the graduate coordinator in the department in which they plan to pursue their MS degree early in their Junior year. This consultation, or series of consultations, should produce a slate of approved undergraduate courses that will be used for graduate credit. Sometimes the instructors of these courses will ask BS/MS students to complete additional work, or will otherwise hold them to higher standards of achievement.

A student’s advisor and graduate coordinator will also determine what role the MQP will play in the BS/MS program. Sometimes the MQP provides a foundation for a thesis. In cases where the BS and MS are not awarded in the same field, the MQP usually relates to the graduate program’s discipline.

Once the specific course and MQP requirements have been established, students complete a Course Selection Form which is submitted to the relevant department(s) for approval. This written agreement constitutes the set of conditions that must be met for a student to complete the BS/MS program. They are a plan for completing the requirements for both degrees and they will not supersede or otherwise obviate departmental and university-wide requirements for either degree. The completed, signed form must be submitted to the Registrar before the student may matriculate in the combined program.

**How to Apply**  
Students almost always apply for admission to the BS/MS program in their Junior year, typically after they have established their curriculum and other program requirements and completed the Course Selection Form with their faculty advisors. Applications are submitted to the Office of Graduate Admissions and are processed with all other graduate applications. Once a decision has been reached, the Office of Graduate Admissions will notify the student, usually within six weeks of receiving the application.

**Program Requirements**  
Only registered WPI undergraduates may apply for admission to the combined BS/MS programs. Students are considered undergraduates, no matter what courses they have completed, until they have met all of the requirements for the Bachelor’s degree. In order to receive the BS and the MS, all of the requirements for both degrees must be completed.

In most departments a student may take up to four years to complete the Master’s portion of the BS/MS program. There are exceptions, however, so students are advised to discuss their timetable with the appropriate advisor or graduate coordinator. Students who stop registering for classes for an extended length of time may be asked to petition the Committee for Graduate Studies and Research to continue their program.

**Credit Equivalence and Distribution**  
No more than 40% of the credit hours required for the Master’s degree, and which otherwise meet the requirements for each degree, may be used to satisfy the requirements for both degrees. In some departments, students may not double-count more than 30% of their graduate credits. Consult the graduate catalog for the requirements of your program.

Double-counted courses are recorded on the transcript using the credit hours/units and grades appropriate at the graduate or undergraduate levels. For students in the combined BS/MS program, approved undergraduate courses are assigned graduate credit with a conversion rate of 1/3 WPI undergraduate unit = 2 graduate credit hours, while graduate courses applied toward the undergraduate degree are awarded undergraduate units with a conversion rate of 1 graduate credit hour = 1/6 undergraduate unit.

**Interdisciplinary Master’s and Doctoral Programs**  
WPI encourages the formation of interdisciplinary master’s and doctoral programs to meet new professional needs or the special interests of particular students. For specific information on interdisciplinary master’s and doctoral programs (see page 86).