

Polymer & Fiber Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for the Master of Polymer & Fiber Engineering

The Polymer & Fiber Engineering Accelerated Bachelor/Master Program (ABM) provides an opportunity for highly motivated undergraduate students to advance their level of knowledge and understanding in polymer materials and engineering beyond that of typical bachelors' level graduates in relevant engineering disciplines. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The ABM in Polymer & Fiber Engineering can lead engineering undergraduates to obtain a Bachelors degree in their undergraduate discipline and a Master of Science in Polymer & Fiber Engineering (thesis or non-thesis) in the ABM track.

The Master of Polymer & Fiber Engineering is an interdisciplinary degree that allows a student to customize a curriculum based on their specific needs, particularly at the undergraduate level for their engineering discipline. Courses taken in the ABM track will count toward a student's undergraduate degree requirements, as well as those for the Master of Polymer & Fiber Engineering. Students must still apply and be accepted into the Master of Polymer & Fiber Engineering program, and are subject to the same acceptance criteria for the degree. Up to nine (9) hours of coursework in the ABM track can be counted.

Students will work with their departmental undergraduate advisor to choose from an approved selection of available courses approved for their Bachelors that can be used for their Masters in Polymer & Fiber Engineering in the ABM track.

Decisions for approval for 6xx0/7xx0 courses that are approved for the ABM Polymer & Fiber Engineering program to replace undergraduate electives in their undergraduate discipline are made by their undergraduate discipline department. The following lists the current course approvals are consistent with approved courses for ABM programs for the following disciplines:

- MECH 6xx0/7xx0 courses are approved courses that can be taken in the ABM program that replace MECH electives at the undergraduate level.
- CHEN 6xxx/7xxx elective courses are approved courses that can be taken in the ABM program that replace CHEN electives at the undergraduate level.
- AERO 6xx0/7xx0 courses are approved courses that can be taken in the ABM program that replace Aero/Astro Electives at the undergraduate level.

For Materials Engineering undergraduates the following provides the required course substitutions for the ABM program:

- MATL 6200 Materials Characterization (2 credit hours) replaces MATL 5200 Materials Characterization (2 credit hours)
- MATL 6201 Materials Characterization (1 credit hour) replaces MATL 5201 Materials Characterization Laboratory (1 credit hour)
- MATL 6400 Physics of Solids (3 credit hours) replaces MATH 5400 Physics of Solids (3 credit hours)
- MATL 6500 Numerical Simulation of Materials Processing (3 credit hours) replaces MATL 5500 Numerical Simulation of Materials Processing (3 credit hours)

The following are the general steps for an Engineering undergraduate student following the current curriculum to enter and complete the proposed ABM program:

All Students:

- Seek admission (Deadline for application is March 1) to ABM Program in Spring semester (Typically Junior, but Sophomores may also apply); **minimum 3.4 GPA**
- Start ABM Program in the following Fall semester
- Graduate with Bachelors degree in their discipline in Spring of undergraduate Senior year and have **gained 9 credits of 6xx0/7xx0 credits** towards ABM program

Masters Non-Thesis Track:

Fifth Year

Fall Semester (10 credit hours):

¹PFEN 6510 Polymer Chemistry (3 credit hours)

¹CHEN 6410 Macromolecular Science and Eng. (3 credit hours)

²PFEN 7980 Graduate Project (4 credit hours)

Spring Semester (11 credit hours):

¹PFEN 6200 Polymer Processing (4 credit hours)

¹PFEN 7700 Polymer Characterization (4 credit hours)

²PFEN 7980 Graduate Project (3 credit hours)

¹Students must earn a C or better in PFEN 6510, CHEN 6410, PFEN 6200, PFEN 7700.

²Students must take a minimum of 6 credit hours of PFEN 7980, and they can take up to a maximum of 12 credit hours of PFEN 7980. The project must entail in-depth work in a particular project in polymers and fibers.

Masters Thesis Track:

Fifth Year

Summer

PFEN 7990 Research and Thesis (1 credit hour)

Fall Semester (8 credit hours):

¹PFEN 6510 Polymer Chemistry (3 credit hours)

¹CHEN 6410 Macromolecular Science and Eng. (3 credit hours)

²XXXX 7950 Graduate Seminar (1 credit hours)

PFEN 7990 Research and Thesis (1 credit hour)

Spring Semester (10 credit hours):

¹PFEN 6200 Polymer Processing (4 credit hours)

¹PFEN 7700 Polymer Characterization (4 credit hours)

²XXXX 7950 Graduate Seminar (1 credit hours)

²PFEN 7990 Research and Thesis (1 credit hours)

Sixth year:

Summer

PFEN 7990 Research and Thesis (1 credit hour)

Fall

PFEN 7990 Research and Thesis (1 credit hour)

¹Students must earn a C or better in PFEN 6510, CHEN 6410, PFEN 6200, PFEN 7700.

²Seminar is required every Fall and Spring. The student must attend even if they are not formally registered for seminar. Seminar can count for a maximum of 2 credit hours towards the 30 hour minimum. PFEN students commonly enroll in the CHEN Seminar Series. However, if a professor from a different department has a PFEN advisee, then the advisor can elect to have the student attend their department's seminar. Example: Mechanical/Materials Engineering seminar class is MATL 7950; Aerospace Engineering seminar class is AERO 7950.