

# POLYMER PROCESSING & MANUFACTURING, CAPSTONE CERTIFICATE

The Polymer Processing & Manufacturing capstone certificate is fully online and covers advanced analysis and modeling of plastics extrusion, injection molding, and other processes; mold and equipment design; along with materials consideration.

## HOW TO GET IN

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This capstone certificate is geared toward those with an academic background in Engineering (Chemical, Mechanical, Materials, Biomedical, Biological Systems, Civil, Etc). Admitted applicants entering the program are expected to have completed an undergraduate degree in an Engineering Field, or Chemistry, Biochemistry, Food Science or Physics.

Applicants must possess a baccalaureate degree. Applications are accepted for Fall, Spring, and Summer on a rolling basis. Division of Continuing Studies (DCS) is the admitting office for all University Special students, including capstone certificate students. However, the department offering the capstone certificate program makes the final admission decision upon review of all applicant materials.

### ADMISSION REQUIREMENTS FOR THE CAPSTONE CERTIFICATE

1. Hold bachelor's degree or equivalent credential from an accredited college or university.
2. A minimum undergraduate grade-point average (GPA) of 3.00 on the equivalent of the last 60 semester hours (approximately two years of work) or a master's degree with a minimum cumulative GPA of 3.00. Applicants from an international institution must have a strong academic performance comparable to a 3.00 for an undergraduate or master's degree.
3. Applicants whose native language is not English must provide scores from the Test of English as a Foreign Language (TOEFL). The minimum acceptable score on the TOEFL is 580 on the written version, 243 on the computer version, or 92 on the Internet version.

**Exceptions to standard admission requirements are considered by the admissions committee on an individual basis.** Applicants may be admitted with deficiency, but will be expected to complete the necessary leveling courses.

### APPLICATION STEPS

1. Submit an online application for admission (<https://acsss.wisc.edu/apply/>) as a University Special student, selecting UNCS Capstone Certificate and the program: Polymer Processing & Manufacturing. This application is received and processed by DCS with final decision held for approval from the specific capstone certificate coordinator.

2. Arrange to have transcripts of all previous educational institutions sent directly to the Graduate Program Coordinator (see contact box).
  - a. **Note:** Transcripts should be sent directly by the educational institution to the program.
3. After all of application materials have been received, the complete application will be presented to the Admissions Committee for evaluation.

### FINAL ADMISSIONS DECISION

Admission decisions are made in the order completed applications are received. The committee will make one of the following decisions:

- Recommend admission
- Decline further consideration of your application.

After a decision is made, student services will contact applicants by email to inform them of the decision and to schedule a time to discuss the decision and any next steps. The DCS is also notified of the final admission decision and completes the formal process for UW-Madison admissions.

## REQUIREMENTS

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#### GRADE REQUIREMENTS

Students must maintain a 3.00 GPA in the capstone to continue to the next class.

#### REQUIRED COURSES

Students must complete 9 credits from the following list.

Code	Title	Credits
E P D 640	Introductory Polymer Rheology	3
E P D 650	Introduction to Polymers Processing	3
M E 419	Fundamentals of Injection Molding	3
M E 514	Polymer Additive Manufacturing	3
M E 717	Advanced Polymer Processing	3
E P D 639	Plastics Recycling and Sustainability	3
M E 718	Modeling and Simulation in Polymer Processing	3
M E 417	Transport Phenomena in Polymer Processing	3
M E 418	Engineering Design with Polymers	3

### MINIMUM REQUIREMENTS FOR CAPSTONE CERTIFICATE COMPLETION

- Students must earn a minimum grade of C in each course used to meet Capstone Certificate requirements.
- Courses in which a student elects the pass/fail or audit option will not count toward completion of Capstone Certificate requirements.
- All of the Capstone Certificate credits must be earned "in residence" (which includes on campus and distance-delivered courses) at UW-Madison.

- All of the Capstone Certificate credits must be earned while enrolled in the Capstone Certificate program.

Individual Capstone Certificate programs may have additional requirements for completion, which will be listed above as/if applicable.

## LEARNING OUTCOMES

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1. Explain the common synthetic strategies for the fabrication of polymers.
2. Evaluate issues in manufacture and processing to make a material or compound.
3. Analyze outcomes of polymer materials based on properties such as viscoelasticity.

## PEOPLE

### PEOPLE

Prof. Tim Osswald  
Prof. Lih-Shen "Tom" Turng  
Dr. Nicole Zacharia