

Polymer Science (Minor)

The minor in Polymer Science is intended to allow students to develop a fundamental understanding of polymers and macromolecules, which dominate both our natural and synthetic worlds. The chemical, physical and structural aspects of polymers and their application in a wide range of materials are examined in a series of courses designed to introduce the basic concept of macromolecules to students.

The Textile Engineering, Chemistry, and Science department (TECS) offers a minor in Polymer Science to majors in all fields (provided the prerequisites are met). The program is designed to expose students to the technical and scholarly disciplines of polymer science, including their syntheses, structures, characterization and properties. Students are given the opportunity to learn how polymers are applied in industrial settings and how they function in nature.

Admissions and Certification of Minor

• Admissions

- Requests for information and additional details about the minor and its prerequisites should be directed to the contact listed at the bottom of the page. To be admitted to the program, a student must have a GPA of at least 2.0.
- Application for admission to any university minor program is now available via MyPack Portal. Admission will be based upon the student's academic record, and in most cases no longer requires departmental review. Go to Add a Minor (<https://studentservices.ncsu.edu/your-degree/coda-home/add-a-minor/>) to apply.

• Certification

- Once pursuing the minor, students should contact the director for advice about course selection and certification. The minor must be completed no later than the semester in which the student expects to graduate from his or her degree program.
- Paperwork for certification is available in the departmental office and should be completed no later than during the registration period for the student's final semester at NC State.

Contact Person

Dr. Wendy Krause

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Plan Requirements

- Students take a minimum of 15 hours from a select group of courses focusing on Polymer Science consisting of 3 required courses (9 hours) as well as 2 advised elective courses (6 hours).
- Students must achieve a grade of 'C' or better in all courses to be used toward the Minor
- Students need to pay special attention to course prerequisites.

Code	Title	Hours
Required Prerequisites		

MA 131 & MA 231	Calculus for Life and Management Sciences A and Calculus for Life and Management Sciences B	4-6
or MA 141/241	Calculus I	
PY 211 & PY 212	College Physics I and College Physics II	4
or PY 205/208	Physics for Engineers and Scientists I	
CH 220	Introductory Organic Chemistry (or higher)	3

Code	Title	Hours
Required Courses		

PCC 106	Chemistry of Colorants and Auxiliaries	3
PCC 461	Chemistry of Polymeric Materials	3
PCC 462	Characterization and Physical Properties of Polymers	3

Elective Courses

Advised Electives ¹	6
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Total Hours	15
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¹ The advised electives are to be selected in consultation with advisor for the Minor from the following list of approved courses.

Elective Courses

Code	Title	Hours
Polymer and Color Chemistry		

PCC 404	Introduction to the Theory and Practice of Fiber Formation	3
PCC 466	Polymer Chemistry Laboratory	3
PCC 471	Chemistry of Biopolymers	3

Chemical Engineering

CHE 461	Polymer Sciences and Technology	3
CHE 465	Colloidal and Nanoscale Engineering	3
CHE 467	Polymer Rheology	3

Textile Engineering

TE 463	Polymer Engineering	3
TE 466	Polymeric Biomaterials Engineering	3

Materials Science and Engineering

MSE 380	Microstructure of Organic Materials	3
MSE 455	Polymer Technology and Engineering	3

Courses from outside of this list need to be approved in advance with the advisor for the Minor. Prerequisites for the elective courses must be met.