School of

POLYMER SCIENCE AND ENGINEERING

MAJORS

- Polymer Science and Engineering BS

MINORS

- Polymer Science Minor

CONTACT US

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THE UNIVERSITY OF SOUTHERN MISSISSIPPI
College of Arts & Sciences

Need help? Contact CAS!
601.266.4315 CoAS@usm.edu

Post-secondary students in the State of Mississippi often choose to attend a Mississippi community college (MS CC) and earn an associate degree before transferring to The University of Southern Mississippi to complete their bachelor's degree. To make this transition as smooth as possible and to ensure no credits are lost, we have created this transfer guide. In most, but not all, cases, students may complete a bachelor's degree in what we refer to as a '2+2' format:

2 years at a MS CC for an associate degree, which includes general education coursework
+
2 years at USM to complete the bachelor's degree

Please use the key below to determine which courses you must, should, or could take at a Mississippi community college before transferring to Southern Miss.

KEY

MUST	Students who do not complete these requirements at a MS CC cannot complete their bachelor's degree in the 2+2 format.
SHOULD	Students should complete these requirements at a MS CC in order to have the smoothest transition to Southern Miss. It may still be possible to complete a bachelor's degree in the 2+2 format without taking these courses, but it will be challenging.
COULD	Students could complete these requirements at a MS CC if they desire. Not taking these courses prior to transferring will not affect a student's ability to complete their bachelor's degree in the 2+2 format.
CALCULUS READINESS	Calculus is required on this degree plan. Students should arrive at Southern Miss ready to take Calculus I, which means they must have completed Trigonometry or have a Math ACT subscore ≥ 26. Students may complete Calculus I prior to transferring if they desire.

NOTE: *This document is intended as a guide; it does not guarantee graduation in the 2+2 format. Degree requirements are subject to change. Please consult the school of your desired major for up-to-date requirements.*

Additional majors are available from the other Southern Miss colleges.

College of Education & Human Sciences
Hattiesburg 601.266.4568
Gulf Park 228.214.3340

College of Business & Economic Development
Hattiesburg 601.266.4659
Gulf Park 228.214.3447
business@usm.edu

College of Nursing & Health Professions
Hattiesburg 601.266.5445
AskCNHP@usm.edu

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

usm.edu/admissions/apply

POLYMER SCIENCE AND ENGINEERING

PROGRAM INFO

Polymer Science and Engineering is a multidisciplinary field that focuses on the structure and processing of polymeric materials and how these relate to properties and performance. The degree program provides many opportunities for students to engage in the field beyond the classroom. There are many research and design topics for students to explore, including aerospace composites, optoelectronic materials, sustainable and environmental friendly plastics, and advanced biomaterials.

KNOWLEDGE & SKILLS

Through coursework in multiple STEM disciplines, upper-level courses, and a senior engineering design experience, the program prepares students to achieve the following educational objectives:

- Advance professionally with increasing leadership and responsibility beyond entry level in polymer industries or related fields.
- Build capability to work effectively in multidisciplinary team settings to achieve organization objectives.
- Contribute to societal benefits in an environmentally and ethically responsible manner.
- Engage in life-long learning through professional activities and training, the pursuit of advanced degrees, and individual professional development.

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RESEARCH AT USM

Our students participate in a year-long senior design project that culminates with the development of a new or improved polymer product or polymer-related process. Performed in groups, these projects are collaborative and industrially relevant. This is an integral part of engineering education. Students also participate in faculty-led groups involved in cutting-edge, externally-funded research and development projects. When involved in research projects, students learn the skills, techniques, and methods necessary to solve challenging technical problems. This enhances scholarship, internship, and future employment opportunities.

INTERNSHIPS & FIELD STUDY

Many students participate in industrial research internships and university research experiences during the summers. Recent examples are:

- Ascend Performance Materials
- Carbon 3D
- Seemann Composites
- US Army Corps of Engineers
- Oak Ridge National Lab
- National Institute of Standards & Technology
- Northwestern University
- Virginia Tech

CAREER OUTLOOK

95% of PSE majors are placed in a job before graduation. Common job titles are materials/polymer scientist or engineer, research and development engineer, process engineer, and quality engineer. According to the Bureau of Labor Statistics, the 2021 median salary for materials engineers exceeded $98,000.

SCHOOL OF
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POLYMER SCIENCE AND ENGINEERING BS 2+2

Complete all requirements for a MS community college associate degree, including general education coursework, and...

* **MUST** Take Chemistry I & II, Organic Chemistry I & II, Physics with Calculus I & II, and Calculus I, II & III
* **SHOULD** Take Statics and Differential Equations.

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CHECKLIST COURSES

	Courses at Community College	Equivalent Courses at Southern Miss
☐	* **CHE 1213** and **CHE 1211** (or **CHE 1214**)	**CHE 106/L** General Chemistry I Lecture and Laboratory
☐	* **CHE 1223** and **CHE 1221** (or **CHE 1224**)	**CHE 107/L** General Chemistry II Lecture and Laboratory
☐	* **CHE 2423** and **CHE 2421** (or **CHE 2424**)	**CHE 255/L** Organic Chemistry I Lecture and Laboratory
☐	* **CHE 2433** and **CHE 2431** (or **CHE 2434**)	**CHE 256/L** Organic Chemistry II Lecture and Laboratory
☐	* **PHY 2513** and **PHY 2511** (or **PHY 2514**)	**PHY 201/L** General Physics I w/ Calculus Lecture and Lab
☐	* **PHY 2423** and **PHY 2521** (or **PHY 2524**)	**PHY 202/L** General Physics II w/ Calculus Lecture and Lab
☐	* **MAT 1613** or **MAT 1815**	**MAT 167** Calculus I
☐	* **MAT 1623** or **MAT 1825**	**MAT 168** Calculus II
☐	* **MAT 2613**	**MAT 169** Calculus III
☐	👍 **EGR 2413** and **EGR 2453**	**AEC 270** Statics and Strengths of Materials
☐	👍 **MAT 2913**	**MAT 285** Differential Equations

NOTE: This document is intended as a guide. Please contact the School of Polymer Science and Engineering at 601.266.4868 or polymers@usm.edu to check on current degree requirements.