

School of

BIOLOGICAL, ENVIRONMENTAL, AND EARTH SCIENCES

MAJORS

- Biological Sciences BS
- Biological Sciences (Biomedical Sciences) BS
- Biological Sciences (Conservation Biology) BS
- Biological Sciences (Biology Education) BS
- Biological Sciences (Microbiology) BS
- Geography BS
- Geology BS
- Medical Laboratory Science (MLT to MLS) BAS*
- Medical Laboratory Science BS
- Sustainability Sciences BS*

* Available fully online

MINORS


- Biological Sciences Minor
- Geography Minor
- Geology Minor
- Sustainability Minor*

CERTIFICATE

- Geographic Information Technology Certificate

CONTACT US

 601.266.4748  BEES@usm.edu

 usm.edu/biological-environmental-earth-sciences

 @usmartsandsciences

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 Nursing & Health Professions

Hattiesburg 601.266.5445

AskCNHP@usm.edu

College of Business & Economic Development

Hattiesburg 601.266.4659

Gulf Park 228.214.3447

business@usm.edu



THE UNIVERSITY OF
SOUTHERN
MISSISSIPPI

BIOLOGICAL SCIENCES

BIOMEDICAL SCIENCES, BIOLOGICAL SCIENCES,
CONSERVATION BIOLOGY, MICROBIOLOGY, BIOLOGY EDUCATION



PROGRAM INFO

The biological sciences programs offer a strong curriculum taught by experts, along with active research, internships, and fieldwork. These experiences give students valuable opportunities to learn and grow into the next generation of scientists.

CAREER OUTLOOK

In 2021, the median income for biological sciences degree holders was 22% higher than the national median. Our programs prepare students for careers as doctors, biotech researchers, wildlife managers, wetland restorers, sustainability consultants, bacteriologists, biomedical engineers, zoologists, environmental journalists, educators, and more. Employers include pharmaceutical companies, environmental agencies, and educational institutions.

Our faculty are experts in their fields, teaching through lectures, online courses, and seminars to build knowledge and analytical skills. They also serve as advisors and mentors, supporting students in career planning and academic progress.

KNOWLEDGE & SKILLS

Our programs provide a broad-based education in the life sciences, including cell biology, genetics, microbiology, and ecology. They emphasize critical thinking, problem-solving, and communication skills—key to success in any field.

RESEARCH AT USM

Research opportunities are available in almost every area of biology for both honors and non-honors undergraduates.

In addition to faculty-funded research, the Mississippi IDeA Network of Biomedical Research Excellence (INBRE) and USM's Drapeau Center for Undergraduate Research fund a number of research projects and summer activities.

OPPORTUNITIES



SCHOLARSHIPS

There are dozens of program-specific scholarships available each year.



STUDY ABROAD

In May, we travel to Belize and Guatemala to study tropical flora and fauna in several different ecosystems (coral reefs, pine savannas, rainforests, and mangrove swamps) and interact with groups working on conservation in Central America.



INTERNSHIPS

The college offers the Stephen Hatten Pre-Medical Externship for pre-medical students and a comparable pre-dental externship for pre-dental students. Advisors can also help students find other internship opportunities.



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BIOLOGICAL SCIENCES 2+2

ALL EMPHASES

usm.edu/admissions/apply



*** MUST**

**fx CALCULUS
READINESS**

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

Take 2 lab sciences each semester at your Community College: Biological Sciences I and II, Chemistry I and II, Physics I and II, and select 2 from the list below. May duplicate gen. ed.

Pass MAT 1323 Trigonometry (MAT 103 at Southern Miss) or have a Math ACT subscore ≥ 26 .

If possible, take Calculus I before transferring.

CHECKLIST

COURSES

Updated August 2025

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Courses at Community College	Equivalent Courses at Southern Miss
* BIO 1133 and BIO 1131 (or BIO 1134)	BSC 110/L Principles of Biological Science I Lecture and Lab
* BIO 1143 and BIO 1141 (or BIO 1144)	BSC 111/L Principles of Biological Science II Lecture and Lab
* 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
* PHY 2413 and PHY 2411 (or PHY 2414)	PHY 111/L General Physics I Lecture and Laboratory
* PHY 2423 and PHY 2421 (or PHY 2424)	PHY 112/L General Physics II Lecture and Laboratory
* ADDITIONAL LAB SCIENCES (Select 2)	
BIO 2433 and BIO 2431 (or BIO 2434)	BSC 201/L General Zoology Lecture and Laboratory
BIO 2923 and BIO 2921 (or BIO 2924)	BSC 282/L General Microbiology Lecture and Laboratory
BIO 1313 and BIO 1311 (or BIO 1314)	BSC 226/L General Botany 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



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GEOGRAPHY



PROGRAM INFO

Geographers focus on a range of themes, including geospatial technologies, weather and climate change, land use and resource management, environmental analysis, planning, sustainability science, landscape study, and socio-cultural processes.

Geographical research on global change is contributing to our understanding of some of the most pressing challenges that face our planet today.

CAREER OUTLOOK

This program prepares students for successful careers in environmental analysis, urban planning, sustainable development, geographic information science, and countless others. Recent graduates of our program work in Naval Research Laboratories, the US Parks Service, the Michigan Department of Health and Human Services, the New York Times, and more.

Our faculty have a strong focus on research and field programs in the greater Gulf of Mexico and Caribbean, Latin America, and Europe. The program provides the full range of geographical instruction appropriate to a globally literate education. Geography majors work closely with a faculty advisor to tailor course selections to fit their career goals.

KNOWLEDGE & SKILLS

- Geographic information systems
- Sustainable development
- Physical geography
- Biogeography
- Human-environment processes
- Geospatial techniques and analysis
- International development
- Land-use and landcover change
- Historical-cultural geography
- Nature-society relationships
- Environmental analysis
- Resource management
- Coastal systems
- Critical thinking, communication, and research

OPPORTUNITIES



SCHOLARSHIPS

The Arthell Kelley Scholarship awards geography majors who have demonstrated excellence in their courses and extra-curricular activities.



STUDY ABROAD

Dr. Andy Reese teaches a geography course for the Southern Miss British Studies Program.



INTERNSHIPS

The geography program emphasizes fieldwork, the application of technical skills, and the development of research capability in a particular emphasis area. Faculty mentors guide students who want to secure a relevant internship.



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GEOGRAPHY

2+2



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



SHOULD

Explore minor options; minor required for this major.



COULD




Take these major courses.

CHECKLIST

COURSES

Updated August 2025

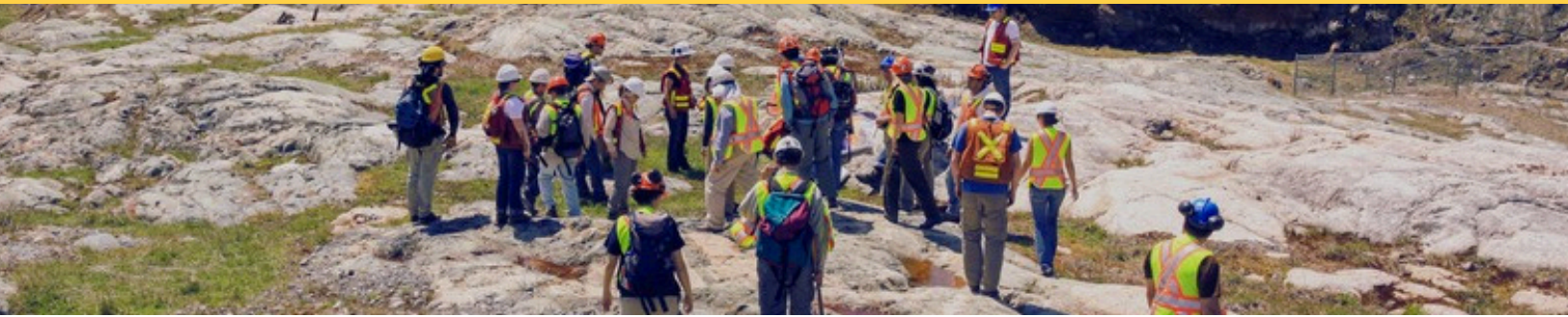
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Courses at Community College	Equivalent Courses at Southern Miss
 GEO 1113	GHY 101 World Geography: Dynamics of a Changing Earth
 GEO 2313	GHY 210 Introduction to Map Reading and Cartography
 EXPLORE MINOR OPTIONS	Common minor options include Biology, History, Public Health, and Sociology.



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GEOLOGY



PROGRAM INFO

Geologists focus on a wide range of topics, including surface and sub-surface Earth dynamics, tectonic processes, the history of life and its evolution, mineral resources, and environmental assessment. Geological research contributes to our understanding of the Earth as a physical system and as the foundation for all life on the planet.

Geology students can specialize in environmental geology, structural geology, petroleum geology, paleontology, and marine geology. Geology graduates are well prepared for a wide range of professional careers.

CAREER OUTLOOK

Geology courses offer students a wide variety of experiences that prepare them well for their post-graduation careers. Most courses contain lab and field components that reinforce classroom learning. Our faculty members represent all the major sub-fields within the discipline and students choose from a broad range of courses according to their interests.

Our graduates are prepared for careers in environmental geology and water resources, exploration and development of petroleum and other natural resources, marine geology, space geology and many other areas. Many of our alumni have gone on to pursue successful careers in the oil and gas industry, mining, resource management, and environmental analysis.

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KNOWLEDGE & SKILLS

As a geology major, you will develop:

- An understanding of earth's physical and chemical processes
- Knowledge of rocks and minerals
- Fieldwork skills
- Data analysis skills
- Communication skills
- Problem-solving skills

OPPORTUNITIES



SCHOLARSHIPS

There are 5 program-specific scholarships for undergraduates.



TRAVEL

Geology students participate in a summer field course in Colorado coordinated by faculty. The course gives students a unique opportunity to gain field experience with the geology of the Rocky Mountains. There are more than 120 other field trip opportunities each year.



INTERNSHIPS

This program emphasizes fieldwork, the application of technical skills, and the development of research capability in a particular emphasis area in geology. Faculty mentor students who want to secure an internship.

GEOLOGY 2+2



SHOULD



**CALCULUS
READINESS**

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

Take 7 lab sciences at your Community College:
Physical and Historical Geology, Chemistry I and II, Physics I and II, and select 1 from the list below. May duplicate gen. ed.

Pass MAT 1323 Trigonometry (MAT 103 at Southern Miss)
or have a Math ACT subscore ≥ 26 .

CHECKLIST








COURSES

Updated August 2025

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Courses at Community College

Equivalent Courses at Southern Miss

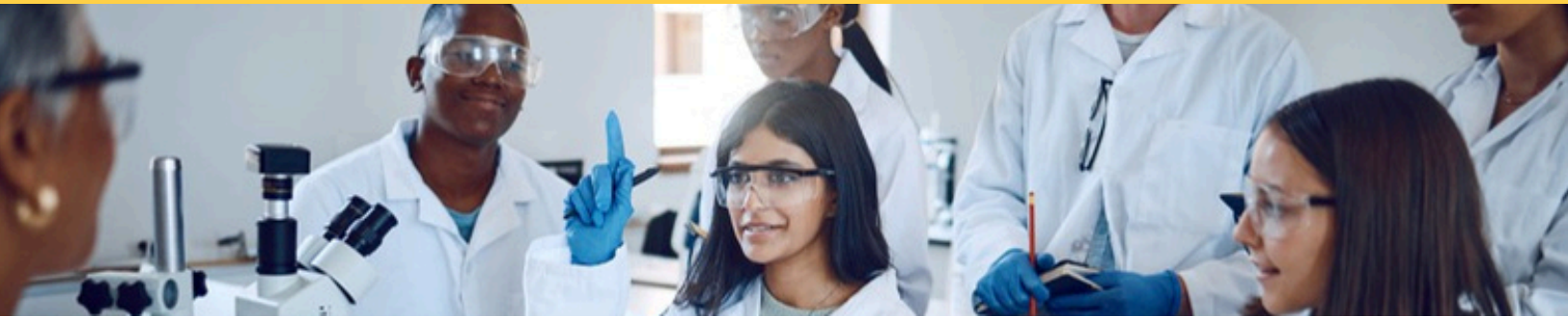
 GLY 1113 and GLY 1111 (or GLY 1114)	GLY 101/L Physical Geology Lecture and Laboratory
 GLY 1123 and GLY 1121 (or GLY 1124)	GLY 103/L Historical Geology Lecture and Laboratory
 CHE 1213 and CHE 1211 (or CHE 1214)	CHE 106/L General Chemistry I Lecture and Laboratory
 CHE 1223 and CHE 1221 (or CHE 1224)	CHE 107/L General Chemistry II Lecture and Laboratory
 PHY 2413 and PHY 2411 (or PHY 2414) or PHY 2513 and PHY 2511 (or PHY 2514)	PHY 111/L General Physics I Lecture and Lab or PHY 201/L General Physics I w/ Calculus Lecture and Lab
 PHY 2423 and PHY 2421 (or PHY 2424) or PHY 2523 and PHY 2521 (or PHY 2524)	PHY 112/L General Physics II Lecture and Lab or PHY 202/L General Physics II w/ Calculus Lecture and Lab
 ADDITIONAL LAB SCIENCE (Select 1) BIO 1133 and BIO 1131 (or BIO 1134) BIO 1143 and BIO 1141 (or BIO 1144) PHY 1113 and PHY 1113 (or PHY 1114) OTHER OPTIONS at USM	BSC 110/L Principles of Biological Science I Lecture and Lab BSC 111/L Principles of Biological Science II Lecture and Lab AST 111/L General Astronomy I Lecture and Laboratory AST 112/L General Astronomy II Lecture and Laboratory MAR 151/L Introduction to Ocean Science Lecture and Lab



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MEDICAL LABORATORY SCIENCES

MLS, MLT TO MLS COMPLETION



PROGRAM INFO

Medical laboratory scientists are healthcare professionals working mainly in hospital and medical facility labs. At USM, MLS faculty ensure students gain the qualifications needed for certification.

Faculty mentor students through activities like the USM MLS Club, ASCLS-MS Student Forum, and Annual State Meeting. Degree options are available for direct MLS entry and for those with Medical Laboratory Technician certification.

KNOWLEDGE & SKILLS

Medical Laboratory Science students learn:

- The identification of pathogenic microorganisms and susceptibility to antimicrobial agents.
- The analysis of body fluids for chemical analytes such as glucose and cholesterol.
- The study of blood cells, including abnormalities, with emphasis on procedures of laboratory examination.
- The theory and techniques of donor selection, processing blood for transfusion and resolving incompatibilities due to unexpected antibodies.
- Introduction of basic principles of laboratory administration and education.

CAREER OUTLOOK

Graduates have careers in medical laboratories and as laboratory information analysts, infection control officers, or product development specialists.

Additional possibilities include progression to professional schools, graduate programs in education or science, or advanced certification as clinical laboratory specialists in disciplines including blood banking, hematology, chemistry, microbiology, or molecular testing.

FACTS





- 93% certification pass rate within 12 months of program completion
- 100% job placement or further academic pursuits
- 3% attrition rate from program Phase I to completion
- MLT to MLS program is available 100% online

INTERNSHIPS



The MLS program has three semesters of clinical practicum for a total of 46 semester hours. The clinical practicum is comprised of two semesters on campus (Practicum Phase I) and twenty weeks at an approved clinical affiliate site (Practicum Phase II).

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MEDICAL LABORATORY SCIENCE 2+2

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



- * MUST** Take Chemistry I & II and Organic Chemistry I. May duplicate gen. ed. Select 1 biology lab sequence below: Biological Science or Anatomy & Physiology.
- 💡 COULD** Complete an accredited Medical Laboratory Technician associate of applied science degree and certification as MLT(ASCP)cm, then follow USM's MLT to MLS degree plan.

CHECKLIST

COURSES

Updated August 2025

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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
* BIOLOGY LABORATORY (Select 1 sequence) Biological Science Sequence BIO 1133 and BIO 1131 (or BIO 1134) and BIO 1143 and BIO 1141 (or BIO 1144) OR Anatomy & Physiology Sequence BIO 1513 and BIO 1511 (or BIO 1514) or BIO 2513 and BIO 2511 (or BIO 2514) and BIO 1523 and BIO 1521 (or BIO 1524) or BIO 2523 and BIO 2521 (or BIO 2524)	BSC 110/L Principles of Biological Science I Lecture and Lab BSC 111/L Principles of Biological Science II Lecture and Lab BSC 250/L Human Anatomy & Physiology I Lecture and Lab BSC 251/L Human Anatomy & Physiology II Lecture and Lab



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SUSTAINABILITY SCIENCES

AVAILABILITY: ONLINE

PROGRAM INFO

This affordable, fully online program provides a comprehensive look at sustainability and resilience, providing you with the knowledge to tackle the planet's most pressing challenges. It equips you with a broad range of skills, like critical problem-solving and the ability to effectively communicate complex sustainability issues to the general public, shaping you into a versatile scientist.

KNOWLEDGE & SKILLS

- **Integrate Science & Society:** Blend natural science, social science, and humanities to solve complex environmental issues.
- **Conduct Powerful Research:** Master qualitative and quantitative methods to drive meaningful sustainability research.
- **Communicate Complex Concepts:** Translate environmental issues for diverse audiences clearly and precisely.
- **Develop Career-Ready Skills:** Build expertise in critical thinking, collaboration, and project design.
- **Understand Sustainability Deeply:** Thoroughly examine sustainability's effects on individuals, communities, and the global environment.

RESEARCH AT USM

If you're passionate about making a real difference, a degree in sustainability is your launchpad—and independent research is where your impact begins. Our Capstone is an applied project where you won't just study problems; you'll explore solutions to global challenges like climate change, water scarcity, and social equity. It's a chance to dive into the issues that matter most, contribute original insights, and shape real-world change.

Whether you're mapping carbon footprints or designing resilient cities, your work can lead, inspire, and inform.

CAREER OUTLOOK

As society becomes more aware of the need for sustainable practices to address challenges like climate change and resource depletion, careers in sustainability are on the rise.

Graduates with strong analytical and problem-solving skills, along with a solid foundation in the natural and social sciences, are well-positioned for meaningful careers.

Opportunities span government, corporations, nonprofits, consulting firms, energy and utilities, construction, engineering, and more.

Potential roles include GIS analyst, sustainability coordinator, environmental consultant, renewable energy analyst, green building specialist, sustainability manager, and others in this emerging field.



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online.usm.edu/undergrad/sustainability-sciences-degree/



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SUSTAINABILITY SCIENCES BS

2+2

usm.edu/admissions/apply

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









-  **SHOULD** Take Biology I & II and Chemistry I.
-  **COULD** Explore minor, certificate, and badge options.
-  **CALCULUS READINESS** Pass MAT 1313 (College Algebra, MAT 101 at Southern Miss) or MAT 1323 or have a Math ACT subscore ≥ 24 .
-  **COULD** Take Calculus I.

CHECKLIST

COURSES

Updated August 2025

	Courses at Community College	Equivalent Courses at Southern Miss
<input type="checkbox"/>	 BIO 1133 and BIO 1131 (or BIO 1134)	BSC 110/L Principles of Biological Science I Lecture and Lab
<input type="checkbox"/>	 BIO 1143 and BIO 1141 (or BIO 1144)	BSC 111/L Principles of Biological Science II Lecture and Lab
<input type="checkbox"/>	 CHE 1113 and CHE 1111 (or CHE 1114)	CHE 104/L Chemistry and Our Environment Lecture and Lab
<input type="checkbox"/>	 MAT 1613 or MAT 1815	MAT 167 Calculus I
<input type="checkbox"/>	 COM 1113	CMS 111 Public Speaking
<input type="checkbox"/>	 GENERAL ELECTIVES (SELECT 1 OR MORE) ECO 2113 ECO 2123 GEO 1113 GEO 2313 MAT 1623	ECO 201 Principles of Macroeconomics ECO 202 Principles of Microeconomics GHY 101 World Geography GHY 210 Introduction to Map Reading and Cartography MAT 168 Calculus II



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