BIOLOGICAL, ENVIRONMENTAL, AND EARTH SCIENCES

MAJORS

* Available fully online

- 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) BS*
- Medical Laboratory Science BS
- Sustainability Studies BA
- Sustainability Sciences (Coastal System Dynamics) BS

MINORS

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

CERTIFICATE

Geographic Information Technology Certificate

CONTACT US



usm.edu/biological-environmental-earth-sciences

@usmartsandsciences

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



BIOLOGICAL SCIENCES

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



PROGRAM INFO

The biological sciences programs offer a rich curriculum with classes taught by experts, vigorous research programs, internships, and work in the field. These experiences provide our students with a wealth of opportunities to learn and develop into the next generation of scientists.

CAREER OUTLOOK

In 2021, the median income of workers with a degree in biological sciences was 22% higher than the national median. Our programs prepare students for careers as doctors, biotechnology researchers, wildlife managers, wetland restorers, sustainability consultants, bacteriologists, biomedical engineers, zoologists, environmental journalists, educators, and more. Some common employers are pharmaceutical companies, environmental agencies, and secondary & postsecondary institutions.

Our faculty are prominent scholars in their respective fields. Through lecture, online, and seminar courses, they cultivate knowledge, understanding, and analytical skills in our students. Faculty serve as advisors and mentors for students to assist them with career planning and degree progress.

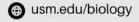
KNOWLEDGE & SKILLS

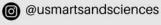
We design our programs to provide students with a broad-based education in the life sciences, including cell biology, genetics, microbiology, and ecology. These programs emphasize critical thinking, problemsolving, and communication skills, which are essential for success in any field.

601.266.4748



BEES@usm.edu





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.



BIOLOGICAL SCIENCES **ALL EMPHASES**

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MUST

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.

& CALCULUS READINESS 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

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 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) BIO 2923 and BIO 2921 (or BIO 2924) BIO 1313 and BIO 1311 (or BIO 1314) CHE 2423 and CHE 2421 (or CHE 2423) CHE 2433 and CHE 2431	BSC 201/L General Zoology Lecture and Laboratory BSC 282/L General Microbiology Lecture and Laboratory BSC 226/L General Botany Lecture and Laboratory CHE 255/L Organic Chemistry I Lecture and Laboratory CHE 256/L
(or CHE 2434)	Organic Chemistry II Lecture and Laboratory



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.

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usm.edu/biology



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.



GEOGRAPHY 2+2

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

SHOULD

Explore minor options; minor required for this major.

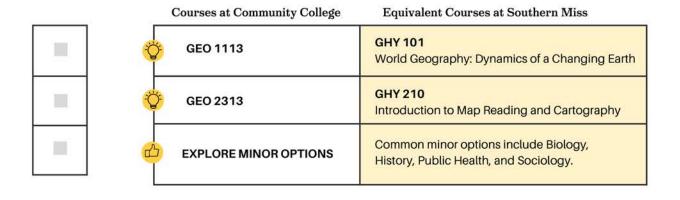


COULD

Take these major courses.

CHECKLIST

COURSES



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

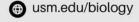
Geology courses offer students a wide variety of experiences that prepare them well for their postgraduation careers. Most courses contain lab and field components that reinforce classroom learning. Our faculty members represent all the major subfields within the discipline and students choose from a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

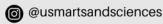
Our graduates are prepared for careers in environmental geology and water resources, exploration and development of petroleum and other natural resources, marine geology, space geology and many other areas. Many of our alumni have gone on to pursue successful careers in the oil and gas industry, mining,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

601.266.4748



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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

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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.

fx CALCULUS READINESS

SHOULD

Pass MAT 1323 Trigonometry (MAT 103 at Southern Miss)

or have a Math ACT subscore ≥ 26.

CHECKLIST

COURSES

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 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	
	GLY 1113 and GLY 1111 (or GLY 1114) GLY 1123 and GLY 1121 (or GLY 1124) CHE 1213 and CHE 1211 (or CHE 1214) CHE 1223 and CHE 1221 (or CHE 1224) PHY 2413 and PHY 2411 (or PHY 2414) or PHY 2513 and PHY 2511 (or PHY 2514) PHY 2423 and PHY 2421 (or PHY 2424) or PHY 2523 and PHY 2521 (or PHY 2524) 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)	

MEDICAL LABORATORY SCIENCES

MLS, MLT TO MLS COMPLETION



PROGRAM INFO

Medical laboratory scientists are healthcare professionals who primarily work in clinical laboratories in hospitals and other medical facilities. At USM, MLS faculty continually work to provide students with the qualifications they need to become certified lab professionals. Faculty mentor students through professional development activities such as the USM MLS Club, the ASCLS-MS Student Forum, and the ASCLS-MS Annual State Meeting. Degree options are available for students entering MLS directly and for those who choose to complete a Medical Laboratory Technician certification prior to enrollment.

CAREER OUTLOOK

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

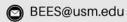
Additional possibilities include progression to professional schools, graduate programs in education or science, or advanced certification as clinical laboratory specialists in disciplines including blood banking, hematology, chemistry, microbiology, or molecular testing.

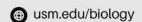
KNOWLEDGE & SKILLS

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.











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.



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

	Courses at Community College Eq	uivalent 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	BSC 110/L Principles of Biological Science Lecture and Lab
	BIO 1143 and BIO 1141 (or BIO 1144)	BSC 111/L Principles of Biological Science II Lecture and Lab
	OR Anatomy & Physiology Sequence BIO 1513 and BIO 1511 (or BIO 1514) or BIO 2513 and BIO 2511 (or BIO 2514) and	BSC 250/L Human Anatomy & Physiology I Lecture and Lab
	BIO 1523 and BIO 1521 (or BIO 1524) or BIO 2523 and BIO 2521 (or BIO 2524)	BSC 251/L Human Anatomy & Physiology II Lecture and Lab

SUSTAINABILITY STUDIES



PROGRAM INFO

The Bachelor of Arts degree in Sustainability Studies provides students with the cultural, social, and scientific understanding of human-nature interaction necessary to achieve meaningful environmental change. By bridging approaches from the humanities, social sciences, and natural sciences, the interdisciplinary B.A. in Sustainability Studies prepares students to take leadership roles in environmental communication, policy, and research careers.

The program's curriculum will offer students ample opportunities for interdisciplinary research, collaborative projects, and hands-on experience where they learn to develop sustainable solutions for pressing social and environmental problems. Our location on the Gulf Coast and established connections with coastal communities provide fertile ground for project-based learning and community outreach.

KNOWLEDGE & SKILLS

Students gain scientific literacy; learn the impact a cultural understanding of the environment has on civic discourse, knowledge production, and decision making; and develop sustainable solutions for pressing social and environmental problems.

Sustainability studies students learn problem solving, critical thinking, field and lab work, collaboration, communication, and research skills.



228.865.4507 CoastalResilience@usm.edu



usm.edu/coastal-resilience



@usmartsandsciences

RESEARCH AT USM

The School of Coastal Resilience is home to over thirty research and teaching faculty in the sciences, mathematics, social sciences, and humanities. Our research and teaching interests encompass coastal processes, ecology, and geography; environmental history, literature, film, policy, and ethics; environmental protection and social justice; sustainability studies and education. In short, all matters that impact human well-being and ecosystem vitality in coastal regions.

CAREER OUTLOOK

The job market for sustainability studies majors is growing as more companies and organizations focus on sustainability and environmental stewardship. Sustainability studies graduates find work in both the public and private sectors, working for non-profits, government agencies, and private companies. Many corporations are expanding their corporate social responsibility and sustainability divisions. Graduates with a B.A. in Sustainability Studies will be welleducated and professionally prepared for such positions.

Potential job titles include environmental educator/advocate, corporate sustainability program coordinator, environmental consultant/public relations specialist, environmental compliance officer, sustainability/climate policy analyst, renewable energy specialist, city planner, and park ranger.



SUSTAINABILITY STUDIES BA 2+2

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



SHOULD Take 1 social science elective. May not duplicate general education coursework. Take 1 humanities elective. May not duplicate general education coursework. Complete the fourth semester of a world language.

CHECKLIST

COURCES

Updated August 2023

SOCIAL SCIENCE ELECTIVE (Select 1) (May not duplicate gen. ed. courses) ANR or SOC 2213 Introduction to Anthropology

> **GEO 1113** World Regional Geography

Courses at Community College

ECO 1113 Introduction to Economics

PSC 1113 American National Government **ANT 101**

The Human Experience: A Global Perspective on **Human Diversity**

Equivalent Courses at Southern Miss

GHY 101

World Geography: Dynamics of a Changing Earth

ECO 101

Basic Economics

PS 101

American Government

HUMANITIES ELECTIVE

(Select 1)

(May not duplicate gen. ed. courses)

HIS 1113 or HIS 1163

Western/World Civilizations I

HIS 1123 or HIS 1173

Western/World Civilizations II

HIS 2213

American (U.S.) History I

HIS 2223

American (U.S.) History II

PHI 2113 or PHI 2123

Introduction to Philosophy I or II

PHI 2143

Introduction to Ethics

PHI 2613

Introduction to World Religions

OTHER OPTIONS

HIS 101

World Civilizations: Beginnings to 1500 C.E.

HIS 102

World Civilizations: 1500 to the present

Survey of United States History to 1877

HIS 202

Survey of United States History since 1877

Introduction to Philosophy

Ethics and Good Living

REL 131

Comparative Religion

English and Film available at USM



WORLD LANGUAGE

through fourth semester

FRENCH, GERMAN, SPANISH Regularly offered at USM



SUSTAINABILITY SCIENCES



PROGRAM INFO

The Sustainability Sciences (Coastal System Dynamics) B.S. program is a multi-disciplinary science degree aimed at addressing resilience and sustainability of the human and ecological systems of coastal zones. Through research, applications, community interactions, and teaching, this program addresses subjects critical to the human habitation of coastal zones well into the next century. Leveraging USM's coastal location, expertise, and community partnerships, students learn about the physical aspects of sustainability, with a holistic inclusion of the human element as a well-rounded multi-disciplinary scientist.

KNOWLEDGE & SKILLS

Sustainability sciences students learn the complex interactions between physical, chemical, geological, and biological processes that occur in coastal systems. Students study sustainable practices, oceanography, coastal geology and ecology, modeling and simulation, data collection, interdisciplinary communication, teamwork, and collaboration.

Coastal System Dynamics majors also earn a certificate or minor in their field of choice.



228.865.4507 CoastalResilience@usm.edu

usm.edu/coastal-resilience

@usmartsandsciences

RESEARCH AT USM

Sustainability sciences majors will complete a capstone practicum under the mentorship of a faculty member that shows applied research in coastal system dynamics. For example, projects could be on the barrier islands, port interactions, beach erosion, urban planning, infrastructure, fishing, aquaculture, or hurricane preparedness.

CAREER OUTLOOK

As society becomes more aware of the need for sustainable practices to address global challenges like climate change and resource depletion, careers in CSD are growing. Graduates with strong analytical and problem-solving skills, as well as a solid foundation in the natural and social sciences, should be well-positioned to pursue rewarding and meaningful careers.

Graduates of this program may find employment in a range of industries and sectors, including government agencies, non-profit organizations, consulting firms, energy and utilities companies, construction and engineering companies, and more. Potential jobs include sustainability coordinator, environmental consultant, renewable energy analyst, green building specialist, sustainability manager, and many others.



usm.edu/admissions/apply

SUSTAINABILITY SCIENCES BS 2+2 (COASTAL SYSTEM DYNAMICS)

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



Take Biology I & II and Chemistry I.

Explore minor options; minor required for this major.

CALCULUS Pass MAT 1323 Trigonometry (MAT 103 at Southern Miss)

READINESS or have a Math ACT subscore ≥ 26.

COULD Take Calculus I.

CHECKLIST

COURSES

	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 Lecture and Laboratory
	MAT 1613 or MAT 1815	MAT 167 Calculus I
Ш	EXPLORE MINOR OPTIONS	Common minor selections include Geography, Biological Sciences, Marine Science, English, History, Political Science, Sociology, & Management.