



Course Syllabus: Life/Earth Science

McCoy College of Science, Mathematics, and Engineering

Lecture - GNSC 1104 Section 201

Spring 2023

MWF 12:00 pm – 12:50 pm | Bolin Hall 100

[Course D2L Site](#)

Laboratory Sections

Attend only the section you are registered for:

GNSC 1104 Section 21A: M 1 – 2:50 pm | Bolin Hall 125

GNSC 1104 Section 21B: W 1 – 2:50 pm | Bolin Hall 125

Contact Information

Instructor: Dr. Steven J. Rosscoe

Office: Bolin Hall 131a

Office hours: MW 3 pm – 4 pm | T 9 am – 10 am, 11 am – 1 pm | Appointment

Office phone: (940) 397-4448

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Course Description

A basic course designed to introduce students to the scientific methods and topics in biology and earth science. Creditable only for students seeking grades 1-6, 4-8, and Kinesiology/Physical Education teacher certification. This course may not be substituted to fulfill science core requirement for other majors.

Course Learning Objectives

The successful completion of this course will be evaluated around the following course learning objectives. Each of these course learning objectives include aspects of both content knowledge and skills development. Students will:

1. Develop an understanding of the Earth as a system composed of multiple interconnected subsystems that intricately link Earth and life.
2. Investigate the active processes that shape the Earth and the materials that the Earth is made up of.
3. Learn the fundamental characteristics, requirements, and processes of living organisms.

4. Discuss how life changes over time through natural selection and how species can develop over time through evolution.
5. Demonstrate the interrelationships between different forms of life and between life and the environment within ecosystems.

Textbook & Instructional Materials

Required Textbook:

Hazen, Robert M. & Trefil, James. 2009. Science Matters: Achieving Scientific Literacy. Anchor Books, 2nd Edition. ISBN 978-0-307-45458-4.

Grading

The formal grade for this course is determined by your performance on lecture exams, laboratory exams, laboratory activities, online quizzes and a group project.

Table 1: Points allocated to each assignment type. For more details see assignment descriptions below.

Assignments (Quantity)	Points
Lecture Examinations (2)	200
Laboratory Examinations (2)	200
Lab Activities (10/12)	200
Quizzes (5/6)	100
Group Project	100
Total Points	800

Table 2: Total points for final grade.

Grade	Points
A	720 and up
B	640 to 719
C	560 to 639
D	480 to 559
F	Less than 480

Lecture Examinations (Online)

During the semester there will be one midterm examination and one final examination given online through the D2L course management system (100 points each). These examinations are given at the end of each our major course units. The midterm examination will cover the unit on Earth Science while the final examination will cover the unit on Life Science. The examinations will consist of 70 multiple choice questions (1 point each) and three short essay questions (10 points each).

In general, the multiple-choice questions will focus on vocabulary and key concepts while the short essay questions will ask you to provide explanations or describe processes. Short essay questions will require a minimum of seven complete and grammatically correct sentences to earn full credit. You will have 120 minutes to complete each examination. Exams will close and auto submit after 120 minutes.

The midterm examination will be released at 6:00 pm on March 3rd, 2023. It is due on March 10th, 2023, by 11:59 pm. The final examination will be released at 6:00 pm on May 5th, 2023. It is due on May 10th, 2023, by 11:59 pm. These examinations are open book. You may use your textbook and your class notes only. You may not use websites, AI, other physical resources, or other people when completing the examination. Fair warning, if you try to use the web (which is not allowed) there are a ton of people who love science but know nothing about it who sound authoritative.

Laboratory Exams (In Lab)

The Earth Science Laboratory Exam (100 points) will cover all content in labs 1-6. There will be a series of activities and questions for you to complete during the laboratory period in which the examination is scheduled (see course schedule and due date list later in the syllabus). The Life Science Laboratory Exam (100 points) will cover all content in labs 7-12. There will be a series of activities and questions for you to complete. You will have the entire laboratory period to complete this examination. You may use your graded labs and all lab handouts when taking the lab examinations. Lab exams start at the start of lab and you have the entire time to complete the exam. Lab exams cannot be made up as they are specimen and activity-based exams.

Lab Activities (In Lab)

The laboratory portion of the course requires the completion of 12 laboratory activities. Most laboratory periods will begin with an introduction of important materials and procedures (usually about a half hour) with a laboratory activity to be completed in the lab. There will typically be questions to be answered after you complete the activity. The lab worksheet is due at the start of the next laboratory period. Labs will be graded and returned the following week. Each lab is worth 20 points, the 10 best lab grades will be the grades used to calculate your course grade (essentially dropping the 2 lowest lab grades). Due dates for each lab can be found on the course due dates table (last page of this document).

Quizzes (Online)

There will be six online quizzes completed throughout the semester on the topics we cover in the lecture portion of the course. These quizzes will consist of twenty multiple choice questions each worth one point. The quizzes will be spaced approximately every two weeks throughout the semester. Quizzes will be

released on Fridays at 6:00 pm. They will be due by the following Monday at 11:59 pm. You will have one attempt to complete the quiz and the quiz will be 30 minutes in length. At the end of the semester only the best five quiz grades will be counted toward your final grade, your lowest quiz grade will be dropped. Taking these quizzes should help you to prepare for your midterm and final examinations as well.

Group Project (Outside of Class)

In both the fields of science and education collaboration with your peers is key to success. We all have our specializations and things we are good at, but to really achieve any educational or scientific goal we need to seek and use the skills and abilities of others as well. As such, in this class, you will work in small groups to complete a group project. In the course you will be learning lots of information through both a theoretical or lecture-style approach and hands-on or laboratory style. Each group will select a topic covered in the early part of the course (Earth Science) and develop a series of activities that could be used to teach a third to fifth grade group of students about that topic. This will result in a presentation of your lesson plan and a demonstration of the activities you develop. These presentations will be submitted as video presentations in D2L. You will need to evaluate your participation as well as the participation of your peers in this project. More details will be released on this project before spring break. The final presentation and group evaluations will be due on May 5th, 2023 by 11:59 pm.

Late Work

Most assignments in this course have at least a week of lead time before their due dates. It is your responsibility to complete the assignment before the due date. If you have something that will prevent you from completing the assignment on the day it is due, get it done earlier. **No late work will be accepted.** Missed labs and examinations may be made up with a legal, paper-documented, excuse. See below for make-up work policy.

Make-Up Work/Tests

For legal, paper-documented, excuses make-ups for labs and examinations can be completed. Discussions cannot be made up; discussions require interaction with your peers in real time. Make-up work should be arranged for in advance wherever possible. The instructor will give you a new deadline that is reasonable for the course timeline. **No make-up work (lecture or lab) will be allowed beyond 10 days past the original deadline.**

Instructor Class Policies

The following policies are the policies that are integral for our successful completion of the course and should be read thoroughly. If you have any questions, please see the instructor.

Academic Honesty

Academic dishonesty is considered cheating, collusion, and plagiarism. Any unauthorized assistance during the completion of assignments, using on aids beyond those authorized for an assignment, or the use of other people or services to complete assignments is considered cheating. Working with others in a way that is not authorized by the instructor to complete assignments is considered to be collusion. Plagiarism is the use of another person's materials (by paraphrase or direct quotation) without giving them full and clear acknowledgement. The use of material prepared by another person or agency selling term papers and academic materials is also considered plagiarism.

If a student is caught cheating, colluding, or plagiarizing on any assignment the assignment grade will automatically be a zero. Two or more violations will result in failure of the course.

Classroom Civility and Inclusion

The best environment for learning is an environment where everyone is respected and valued for who they are. In my classroom, we are striving for full inclusion. Anyone using derogatory language toward an individual or group is in violation of this policy and will be asked to leave. We are all here together, learning together, this is not a place for hate of any kind. Be civil, treat each other with respect, and do your best listen to each other in any conversation.

Electronic Devices

Use of electronic devices for taking notes is allowed in my classroom. Recording (audio or video) is not allowed unless approved by the instructor for educational purposes. The use of social media or streaming anything is not an appropriate use of technology during class. If your use of technology in a non-educational way is being disruptive to your peers, you will be asked to leave.

Course Grade and Grade Bumps

In my courses, a grade is earned by accumulating points throughout the semester. The grade you earn in the course is determined by the number of points you earn through the timely completion of assignments. As such, at the end of the semester, there are no grade bumps given out. Do not ask how or if you can be bumped up to the next letter grade, if you haven't earned the points you will not be able to get that grade.

If you believe there to be an error in the calculation of your grade, whether it is on a specific assignment or the whole course feel free to ask me to re-evaluate and double check. I will do so happily. For specific assignments, be prepared to give me specific reasons you feel the grade is wrong (which wrong answer do you think was right, etc.).

Desire-to-Learn (D2L)

Extensive use of the MSU D2L learning management system is required in this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Computer Requirements

Taking this course involves the completion of all lecture exams, reading quizzes, and discussions in the course learning management system (D2L). This class requires you to have access to a computer (with Internet access) to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. **Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered a reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.** Computers are available on campus in various areas of the buildings as well as the Academic Success Center. **Your computer being down is not an excuse for missing a deadline!!** There are many places to access your class! Our online classes can be accessed from any computer in the world which is connected to the internet. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to both liability and resource limitations however they are able to help you get connected to our online services. For help, log into D2L.

University Policies and Information

The following information and policies apply to this course. Please read each of these policies and ask your instructor if you have any questions.

Important Dates

Last day for term schedule changes: January 20, 2023

Deadline to file for May graduation: February 20, 2023

Last Day to drop with a grade of "W:" March 27, 2023

Attendance

Students are expected to attend all meetings of the classes in which they are enrolled. Although in general students are graded on intellectual effort and performance rather than attendance, absences may lower the student's grade where class attendance and class participation are deemed essential by the faculty member. In those classes where attendance is considered as part of the grade, the instructor should so inform students of the specifics in writing at the beginning of the semester in a syllabus or separate attendance policy statement. An instructor who has an attendance policy must keep records on a daily basis. The instructor must give the student a verbal or written warning prior to being

dropped from the class. Instructor's records will stand as evidence of absences. A student with excessive absences may be dropped from a course by the instructor. Any individual faculty member or college has the authority to establish an attendance policy, providing the policy is in accordance with the General University Policies.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

Campus Carry Rules/Policies

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry Rules and Policies](#)

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond

to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#).

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by MSU. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Grade Appeal Process

Following the appropriate procedure for grade appeals requires you to speak to your instructor first, so talk to your instructor. Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#).

Course Schedule

Notice: Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. All lab activities are due by the start of your lab session the week following the in-class activity. All lab exams are due at the end of the lab period of the exam.

Week	Monday	Wednesday	Friday
<u>Week 1</u> 1/16 to 1/20	No Class <i>MLK Jr. Holiday</i>	Introduction <i>No Reading</i>	Earth Science <i>No Reading</i>
	No Laboratory Meetings <i>No Reading</i>		
<u>Week 2</u> 1/23 to 1/27	Earth in Context <i>No Reading</i>	The Earth System <i>No Reading</i>	The Physical Earth <i>No Reading</i>
	<u>Lab 01</u> – Observation in Science <i>Handouts</i>		
<u>Week 3</u> 1/30 to 2/03	RE: Tectonics <i>HT Chapter 13</i>	RE: Earthquakes <i>HT Chapter 13</i>	RE: Volcanoes <i>HT Chapter 13</i>
	<u>Lab 02</u> – Experimentation in Science <i>Handouts</i>		
<u>Week 4</u> 2/06 to 2/10	EM: Minerals <i>HT Chapter 14</i>	EM: Minerals <i>HT Chapter 14</i>	EM: Rock Cycle <i>HT Chapter 14</i>
	<u>Lab 03</u> – Minerals <i>HT Chapter 14</i>		
<u>Week 5</u> 2/13 to 2/17	EM: Igneous Rx <i>HT Chapter 14</i>	EM: Sedimentary Rx <i>HT Chapter 14</i>	EM: Metamorphic Rx <i>HT Chapter 14</i>
	<u>Lab 04</u> – Rocks <i>HT Chapter 14</i>		
<u>Week 6</u> 2/20 to 2/24	BP: Oceans <i>HT Chapter 14</i>	BP: Streams <i>HT Chapter 14</i>	BP: Ice/Groundwater <i>HT Chapter 14</i>
	<u>Lab 05</u> – Topography <i>Handouts</i>		
<u>Week 7</u> 2/27 to 3/03	The Atmosphere <i>HT Chapter 14</i>	Weather <i>HT Chapter 14</i>	Climate <i>HT Chapter 14</i>
	<u>Lab 06</u> – Surface Processes <i>Handouts</i>		
<u>Week 8</u> 3/06 to 3/10	What is Life? <i>HT Chapter 15</i>	Needed to Live <i>HT Chapter 15</i>	Life and Earth <i>HT Chapter 15</i>
	Lab Midterm – Earth Science		
Spring Break	Spring Break Holiday <i>3/11 to 3/19</i>		

Course Schedule Continued

Notice: Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. All lab activities are due by the start of your lab session the week following the in-class activity. All lab exams are due at the end of the lab period of the exam.

Week	Monday	Wednesday	Friday
Week 9 3/20 to 3/24	The Cell <i>HT Chapter 15</i>	Cellular Structures <i>HT Chapter 15</i>	Cellular Processes <i>HT Chapter 15</i>
	<u>Lab 07</u> – Paleontology <i>Handouts</i>		
Week 10 3/27 to 3/31	Classifying Life <i>HT Chapter 15</i>	Not Animals <i>HT Chapter 15</i>	Animals <i>HT Chapter 15</i>
	<u>Lab 08</u> – Single-Celled Organisms <i>Handouts</i>		
Week 11 4/03 to 4/07	DNA/RNA <i>HT Chapter 16</i>	Genes & Alleles <i>HT Chapter 16</i>	No Class Holiday Break
	<u>Lab 09</u> – Basal Metazoans <i>Handouts</i>		
Week 12 4/10 to 4/14	Mutation/Variability <i>HT Chapter 16</i>	Mitosis <i>HT Chapter 16</i>	Meiosis <i>HT Chapter 16</i>
	<u>Lab 10</u> – Complex Metazoans <i>Handouts</i>		
Week 13 4/17 to 4/21	Artificial Selection <i>HT Chapter 18</i>	Natural Selection <i>HT Chapter 18</i>	Speciation/Evolution <i>HT Chapter 18</i>
	<u>Lab 11</u> – Chordates/Vertebrates <i>Handouts</i>		
Week 14 4/24 to 4/28	Populations <i>HT Chapter 19</i>	Communities <i>HT Chapter 19</i>	Ecosystems <i>HT Chapter 19</i>
	<u>Lab 12</u> – Plants <i>Handouts</i>		
Week 15 5/01 to 05/05	Ecosyst. Structure <i>HT Chapter 19</i>	Humans & Ecosysts. <i>HT Chapter 19</i>	Conclusion <i>HT Chapter 19</i>
	Lab Final – Life Science		
Finals 05/10	Final Exam Block: Wed. May 10, 2023, 3:30 pm – 5:30 pm <i>Attendance is not required during the examination block.</i>		

Course Due Dates in Chronological Order

The following table lists the due dates of each assignment in the course. Lab due dates correspond to the day of your lab (ex: if you have a Monday lab, use the Monday due date).

Due Date	Assignment
F 01/27	Quiz 1 Releases 6:00 pm
M 01/30	Quiz 1 Due 11:59 pm
M 01/30 W 02/01	Lab 1: Observation in Science Due
M 02/06 W 02/08	Lab 2: Experimentation in Science Due
F 02/10	Quiz 2 Releases 6:00 pm
M 02/13	Quiz 2 Due 11:59 pm
M 02/13 W 02/15	Lab 3: Minerals Due
M 02/20 W 02/22	Lab 4: Rocks Due
F 02/24	Quiz 3 Releases 6:00 pm
M 02/27	Quiz 3 Due 11:59 pm
M 02/27 W 03/01	Lab 5: Topography Due
F 03/03	Lecture Midterm Exam Releases 6:00 pm
M 03/06 W 03/08	Lab 6: Surface Processes Due
M 03/06 W 03/08	Laboratory Midterm Examination Due 5:00 pm
F 03/10	Lecture Midterm Examination Due 11:59 pm
M 03/27 W 03/29	Lab 7: Paleontology Due
F 03/31	Quiz 4 Releases 6:00 pm
M 04/03	Quiz 4 Due 11:59 pm
M 04/03 W 04/05	Lab 8: Single-Celled Organisms Due
M 04/10 W 04/12	Lab 9: Basal Metazoans Due
F 04/14	Quiz 5 Releases 6:00 pm
M 04/17	Quiz 5 Due 11:59 pm
M 04/17 W 04/19	Lab 10: Complex Metazoans Due
M 04/24 W 04/26	Lab 11: Chordates/Vertebrates Due
F 04/28	Quiz 6 Releases 6:00 pm
M 05/01	Quiz 6 Due 11:59 pm
M 05/01 W 05/03	Lab 12: Plants Due
M 05/01 W 05/03	Laboratory Final Examination Due 5:00 pm
F 05/05	Group Project Presentation & Evaluations Due 11:59 pm
F 05/05	Lecture Final Examination Releases 6:00 pm
W 05/10	Lecture Final Examination Due 11:59 pm