

NORTH CENTRAL MISSOURI COLLEGE
SYLLABUS
Biology
2024-2025


Course Number: BI100 (MOTR BIOL 100L)

Instructor Information:

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Office Hours: Daily before and after school

Faculty will respond in a timely and professional manner to student emails and phone messages. The standard is generally to respond within 48 hours Monday-Friday when classes are in session. All email correspondence is through NCMC student email.

Course Description: This course focuses on the general principles of biology, including ecology, cell biology, biochemistry, genetics, microbiology, botany, and zoology. Structure, function and life application are stressed as components of each unit of study. Natural Sciences credit; consult transfer catalog for specific program biology requirements. Lecture and laboratory.

MOTR Equivalent: MOTR BIOL 100L—Essentials in Biology with Lab 

Prerequisites: EN101W, English with Workshop and DS 049, Basic Algebra or appropriate ACT or placement test scores

Credit Hours: 5 (4 lecture, 1 laboratory)

Contact hours: 4 lecture 2 laboratory

Textbook and/or Supplementary Materials:

OpenStax College, *Concepts of Biology*. OpenStax College. 25 April 2013
ISBN-10 1938168119 ISBN-13 978-1-938168-11-6

Biology Laboratory Manual

College Website <http://www.ncmissouri.edu>

Brightspace Website <https://ncmc.brightspace.com/d2l/home>

Student Learning Objective: Upon successful completion of this course the student will be able to:	Assessment Method: Describe the assessment tool used to demonstrate each student learning outcome
1. Apply the scientific method including designing and conducting experiments to test hypotheses	Exam or selected laboratory exercise/report
2. Recognize the relationship between structure and function at all levels: molecular, cellular, and organismal	Exam
3. Determine if an object is living or non-living, prokaryotic or eukaryotic, plant cell or animal cell based on identifying cell characteristics	Exam or selected laboratory exercise/report
4. Explain that genes are segments of DNA with information that dictates the sequence of amino acids for synthesizing proteins	Exam
5. Describe the relationship between the following levels of organization: molecule, organelle, cell, tissue, organ, organ system, and organism	Exam or levels of organization assignment--how fundamental physiological processes are impacted by changes at the molecular level (i.e. photosynthesis or human disease)
6. Give examples of the interdependency of biotic and abiotic components of ecosystems (e.g. nutrient cycling, energy flow, etc.)	Exam or selected Ecological Topic Report (such as Pershing Park, Economy vs Ecology, etc.)
7. Define evolution as a change in allele frequency	Exam or selected laboratory exercise
8. Demonstrate a basic understanding of common biotechnology tools and explain how the use of these tools has influenced social, cultural, or political issues	Exam or selected laboratory exercise

Instructional Methods and Techniques:

1. Lecture
2. Laboratory exercises
3. Individual and group work
4. Class discussion
5. Learner presentation

Course Requirements:

This course requires a minimum of two hours of out-of-class work for every one hour of faculty instruction.

Points will be derived from each of the following categories:

1. Each unit will culminate with a 100 point exam.
2. For each unit there will be a variable combination of laboratory exercises, laboratory reports, chapter worksheets, and other assignments. Each assignment will be given an appropriate number of points. To receive the maximum score, the assignments must satisfy the stated requirements and be turned in on or before the due date. The total number of points earned per chapter will be at least 10 and not more than 40.

General point distribution:

Laboratory exercises	0-20 points
Laboratory reports	0-20 points
Worksheets	0-20 points
Other assignments	0-10 points

In general, no late work will be accepted. If accepted, based on the criteria of the instructor, any work turned in after the due date will receive at least a 50% reduction.

Grading Scale: 90-100% = A 80-89% = B 70-79% = C 60-69% = D 59% and below = F

Attendance and Class Participation:

See common syllabus for official NCMC college-wide policy available in the Campus Resources area at <https://ncmc.brightspace.com/d2l/home>.

Due to the laboratory component and nature of the course, success in biology is dependent on attending and participating in class. In case of an absence it is the student's responsibility to cover missed information. Any laboratories or other in-class activities missed for any reason are not available for students to make up and no points will be given. Contact the instructor about extenuating circumstances.

Attendance is expected every day for all students and will be taken five (5) minutes after the class start time. Students arriving after that time or leaving early, will be counted as absent for the day. The highest letter grade a student with 5 or more unexcused absences will be able to earn is a B (regardless of percentage in the course). Excused absences must be documented and may include, but are not limited to, NCMC sanctioned events, documented illnesses, and documented death in the immediate family. No more than two consecutive excused absences will be accepted.

When attendance and participation are clearly not a student priority, the instructor reserves the right to lower that student's final course grade by one letter grade (regardless of percentage in the course).

DISCLAIMER: Please note that the specifics of the course syllabus can be changed at any time, and you will be responsible for abiding by any such changes. Your instructor will notify you of any changes.

Electronic Devices:

Out of respect for your fellow students, your professor, and the educational process, all technology devices (cell/smart phones, i-pods, tablets, laptops, pagers, beepers, and similar devices) must be powered down and out of sight during lectures and laboratories unless directed to use them by the instructor. Photos and video may not be taken in class without prior permission. With prior approval from the instructor you may use a laptop for taking notes. However, it should not be used for anything else during class. You will lose this privilege if you use the laptop for anything else during class. If you feel you have an emergency situation that requires your phone to be on vibrate, please clear this with the professor before class begins.

Noncompliance with this policy will result initially in a pause to wait for you to put the device(s) away. The second time, you will be asked to leave and will be marked absent for the day.

Academic Dishonesty:

See common syllabus for official NCMC college-wide policy available in the Campus Resources area at <https://ncmc.brightspace.com/d2l/home>.

Additional Policies:

For information about special accommodations, Title IX, Academic Alert, Communications, and Finals, please see the common syllabus for official NCMC college wide policies available in the Campus Resources area at <https://ncmc.brightspace.com/d2l/home>.

NCMC's goal is a safe and inclusive learning environment. If you have been approved for an accommodation, have emergency medical information that would be helpful for the instructor to know, or if special arrangements are needed in an evacuation, please make the instructor aware. Further information about accessibility services is available in the common syllabus in the Campus Resources area at <https://ncmc.brightspace.com/d2l/home>.

Course Outline/Major Topics Studied:

Changes may be made at the discretion of the instructor.

Topic	Chapters	Lab Exercises
Scientific Inquiry	Chapter 1	Scientific Inquiry
Chemistry of Life	Chapter 2	pH and Buffers
Chemistry of Life	Chapter 2	Molecules of Life
EXAM 1		
Cell Structure and Function	Chapter 3	Microscopes Cell Structure
Cell Structure and Function	Chapter 3	Diffusion and Osmosis
EXAM 2		
How Cells Obtain Energy	Chapter 4	Enzymes Cellular Respiration
Photosynthesis	Chapter 5	Photosynthesis
EXAM 3		
Reproduction at the Cellular Level	Chapter 6	Mitosis
Cellular Basis of Inheritance	Chapter 7	Meiosis Simulation
Patterns of Inheritance	Chapter 8	Genetic Crosses
EXAM 4		
Molecular Biology	Chapter 9	DNA Extraction
Molecular Biology	Chapter 9	Transcription Translation Simulation
Biotechnology	Chapter 10	pGLO Transmformation
EXAM 5		
Evolution and its Processes	Chapter 11	Hardy Weinberg Beads
Diversity of Life	Chapter 12	Classification
EXAM 6		
Ecological Principles	Chapter 19-21	Population Growth
Ecological Principles	Chapter 19-21	Survivorship
FINAL EXAM	Cumulative	

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