North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Health Sciences

B. Discipline: Biology

C. Course Number and Title: BIOL1231 Biology II

D. Assistant Dean: Heidi Kreglow, PT

E. Credit Hours: 4
Lecture: 3 hours
Lab: 3 hours

F. Prerequisites: BIOL1230 Biology I

G. Last Course/Curriculum Revision Date: Spring 2025 Origin date: 10/3/2012

H. Textbook(s) Title:

Campbell Biology with Mastering Biology
- Author(s): Reece, Urry, et al.
- Copyright Year: 2017
- Edition: 11th
- ISBN: 9780134093413

I. Workbook(s) and/or Lab Manual:

Investigating Biology Laboratory Manual
- Author(s): Morgan and Carter
- Copyright Year: 2017
- Edition: 9th
- ISBN: 9780134473468

J. Course Description: This course is continuation of BIOL 1230 Biology I. The course will introduce fundamental concepts of biology including evolution, classification, ecosystems, similarities and differences, among plants, animals and microorganisms in form and function. Historical contributions and application of biological principles to biotechnology will be discussed. Students will meet three lecture hours and three lab hours per week.

K. College-Wide Learning Outcomes

College-Wide Learning Outcomes	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	Quantitative Literacy VALUE rubric – exam on Hardy Weinberg Equilibrium at mid-term.

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Describe the evidence for evolution	Quizzes throughout term Mid-term and final exam
2. Identify the evolutionary processes that lead to adaptation and biological diversity	Homework assignments, Quizzes throughout term Mid-term and final exam
3. Describe levels of biological organization from cells, the basic unit of life, to the organism and the relationship of structure to function at all levels of biological organization.	Quizzes throughout term Mid-term and final exam
4. Describe the basic structures and fundamental processes of life at molecular, cellular, and organismal levels.	Quizzes throughout term Mid-term and final exam
5. Recognize that all living organisms consist of cells. Discuss the differences between prokaryotic and eukaryotic cells.	Quizzes throughout term Mid-term and final exam
6. Describe the basic plant and animal cell structure and function including their respective organelles and other components, particularly cell membranes, and methods of study	Quizzes throughout term Mid-term and final exam
7. Describe the general organization of the animal body and vascular plants	Quizzes throughout term Mid-term and final exam
8. Describe and contrast reproduction and development in plant and animal systems	Quizzes throughout term Mid-term and final exam
9. Compare the structure of nutrient procurement and processing systems in plants and animals	Quizzes throughout term Mid-term and final exam
10. Describe the structure and function of the nervous system, the musculo-skeletal system, the respiratory system and the mechanisms of internal transport and regulation in various organisms	Quizzes throughout term Mid-term and final exam
11. Understand the fundamentals of the endocrine system at the systemic level	Quizzes throughout term Mid-term and final exam
12. Describe basic processes of infectious disease and defense against infection.	Quizzes throughout term Mid-term and final exam
13. Explain differences among classes of organisms in terms of biological structures and their functions.	Quizzes throughout term Mid-term and final exam
14. Outline and describe the major invertebrate and vertebrate phyla in terms of structure, nutrition, life history, and evolutionary relationships	Quizzes throughout term Mid-term and final exam
15. Describe the processes and results of scientific inquiry with the remodeling of animal phylogenetic relationships	Quizzes throughout term Mid-term and final exam

Outcomes	Assessments – How it is met & When it is met
16. Describe the relationship between life forms and their environment and ecosystems.	Quizzes throughout term Mid-term and final exam
17. Describe the different types of relationships that exist between living organisms.	Quizzes throughout term Mid-term and final exam
18. Explain how populations grow, and how we can describe this mathematically.	Quizzes throughout term Mid-term and final exam
19. Explain how energy moves through an ecosystem	Quizzes throughout term Mid-term and final exam
20. Describe the basic principles of conservation biology	Quizzes throughout term Mid-term and final exam
21. Describe and explain various types of animal behavior.	Quizzes throughout term Mid-term and final exam
22. Describe advantages and disadvantages of social behavior	Quizzes throughout term Mid-term and final exam
23. Document the solution to scientific problems through the collection, organization, analysis and interpretation of qualitative and quantitative data. Incorporate findings into broader context of biological knowledge	Lab reports, Quizzes throughout term Mid-term and final exam
24. Apply current research literature, information related to biological issues in the mass media	Lab reports, Quizzes throughout term Mid-term and final exam
25. Integrate and relate knowledge to real life situations	Quizzes throughout term Mid-term and final exam

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Health Sciences	**Discipline:**	Science
Course Coordinator:	Justin Tickhill		
Course Number:	BIOL-1231	**Course Title:**	Biology II
Semester / Session:	Spring 2025	**Start / End Date:**	01/13/2025-05/09/2025

Instructor Information

Name:	Justin Tickhill	**Credentials:**	Master of Science in Biology
Phone Number:	419 755 4771 (use email)	**E-Mail Address:**	jtickhill@ncstatecollege.edu
Office Location:	HS 334	**Office Hours:**	Posted in Canvas
Name:	Jason Kougher	**Credentials:**	Master of Science in Biology
Phone Number:	814-591-6525 (use email)	**E-Mail Address:**	jkougher@ncstatecollege.edu
Office Location:	Adjunct office	**Office Hours:**	Posted in Canvas

I. Topical Timeline (Subject to Change):

BIOL 1231 SPRING 2026 VERSION 1			
Week	**Date**	**Content**	**Reading Assignment**
1	01-12	Descent with Modification: A Darwinian View of Life; The Evolution of Populations	Chapter 22 & 23
	01-14	**Lab topic 1:** Population Genetics I	Lab Topic 11
2	01-19	Martin Luther King Jr. Day (College Closed)	(College Closed)
	01-21	**Lab topic 2:** Plant Anatomy	Lab Topic 20
3	01-26	Phylogeny and the Tree of Life; Bacteria and Archaea	Chapter 26 & 27
	01-28	**Lab topic 3:** Plant Diversity I	Lab Topic 14
4	02-02	Plant Diversity I and II ***QUIZ 1***	Chapter 29 & 30
	02-04	**Lab topic 4:** Plant Diversity II	Lab Topic 15
5	02-09	An Overview of Animal Diversity	Chapter 32
	02-11	**EXAM I (CH 22, 23, 26, 27, 29, 30)**	---
6	02-16	An Introduction to Invertebrates; The Origin and Evolution of Vertebrates; Basic Principles of Animal Form and Function	Chapter 33 & 34 & 40
	02-18	**Lab topic 5:** Animal Diversity I	Lab Topic 18
7	02-23	Animal Nutrition ***QUIZ 2***	Chapter 41
	02-25	**Lab topic 6:** Animal Diversity II	Lab Topic 19
8	03-02	Circulation and Gas Exchange	Chapter 42
	03-04	**EXAM II (CH 32, 33, 34, 40, 41)**	---
SPRING BREAK 3/9 - 3/14			
9	03-16	Osmoregulation and Excretion	Chapter 44

	03-18	**Lab topic 7:** Vertebrate Anatomy I	Lab Topic 22
10	03-23	Hormones and the Endocrine System	Chapter 45
	03-25	**Lab topic 8:** Vertebrate Anatomy II	Lab Topic 23
11	03-30	Animal Reproduction ***QUIZ 3***	Chapter 46
	04-01	**Lab topic 9:** Vertebrate Anatomy III	Lab Topic 24
12	04-06	Animal Development	Chapter 47
	04-08	**Lab topic 10:** SimBio lab: Keystone Predator	SimBIo questions
13	04-13	Neurons, Synapses and Signaling; Nervous System	Chapter 48 & 49
	04-15	**EXAM III (CH 42, 44, 45,46, 47)**	---
14	04-20	Animal Behavior, An Introduction to Ecology and the Biosphere & Population ecology	Chapter 51, 52 & 53
	04-22	**Lab topic 11:** Ecology I	Lab Topic 27
15	04-27	QUIZ 4 Community ecology, Ecosystems and Restoration Ecology & Conservation Biology and Global Change	Chapter 55, 56 & 57
	04-29	**Lab topic 12:** Ecology II (May be replaced by a SimBio Lab: Nutrient Pollution if needed)	Lab Topic 28
16	05-04	**Final Exam**	**---**

II. Course Assignments:

1. Quizzes
2. Exams
3. Reading quizzes
4. Lab activities
5. Written assignments

III. Grading and Testing Guidelines:

240 points) The lab section will have points associated with each lab activity. There are 12 Lab Activities and each is worth 20 points.

75 points) There will be Fifteen (15) reading quizzes or small activities given throughout the semester. Each will be worth 5 points and usually due before the lecture time begins depending on time to complete.

80 points) There will be 4 Module quizzes. Each quiz is worth 20 points. Quizzes CANNOT be taken after the due date.

400 points) There will be four exams dividing the course into 4 equal sections (weeks 1-4, 5-8, 9-12 & 13-16). for modules 1-5. Each Exam will be worth 100 points. This will total 400 points for the semester.

75 points) The FINAL PROJECT/ TAKE HOME EXAM will contain questions covering the entire semester.

30 points) Surveys and feedback. There will be one or more surveys that I need you to complete this semester. I will award you points for completion.

100 points) Attendance. Being present during the lecture and lab will earn you points throughout the semester. If you attend all, you will receive 100 points. You will lose a proportion of the points for each class session missed.

This means that there are 1000 points available for the semester.

IV. Examination Policy:

An absence is considered excused if it is a documented official absence, examples are:

1) an absence for a school function, verified with an official absence verification card

2) an absence for a religious holiday provided that the student submit to me, no later than one week in advance, a written statement including the date of the holiday and the reason why attendance to class is impossible

3) an absence due to injury, sickness or loss of a relative, given proper documentation is provided (note from the attending physician, or copy of the death certificate).

4) Being mandated or scheduled over at work (this requires written verification from employer, direct superior is best option)

Any other absence, or an absence without documentation, is unexcused.

Exams cover lecture and laboratory concepts, material from the text and the lab handouts, and homework. Only a small portion of each exam will test your ability to memorize. Most questions are designed to test your ability to reason, synthesize ideas and solve problems. Format of the exam questions may be multiple choice, true/false, fill-in, or short answer. In accordance with the course objectives, you will be tested on your understanding of scientific reasoning as well as biological concepts. **Make-up exams are allowed ONLY with PRIOR approval of the instructor.** It is the student's responsibility to contact the instructor PRIOR to the exam; otherwise, a zero may be earned for that examination. You must have an excused absence to have a make-up scheduled.

Quiz Procedure: Quizzes can be taken at any time **BEFORE** the **due date**. After the due date, I will be opening the answers for you to check your work. This will prevent me from being able to open a quiz after the due date. If something that would be covered in the "Excused Absences Policy" occurs, CONTACT ME (see Hello, Who am I? How to contact me, Who are you? (page 1) for contact information) and we will find a fair solution (fair to ALL students, not just you).

Late Policy: Late lab write ups will lose 1 point per day late (and hence be automatic zeroes if 20 days past due). This will not apply to the final two labs, they must be turned in before the final exam to receive any credit (so that I can give you a final grade on time). Please note time frames and plan accordingly. Please contact me if something occurs that is covered in the "Excused Absences Policy"

V. Class Attendance and Homework Make-Up Policy:

See above.

VI. Classroom Expectations:

All communications & conduct in this course is subject to the NC State Student Code of Conduct

General Professionalism Expectations

In general, as a future professional in your field, **you will be expected to conduct yourself as a professional in this course in ALL communications** - assignments, discussion forums, Canvas Inbox, emails etc.

This expectation includes *but is not limited to*:

- **Being respectful of classmates' opinions, work and comments**
  Good test = Is this something I would/should say to a co-worker in person?
- **Being respectful in communications with the instructor**
  Good test = Is this something I would/should say to my boss in the workplace?
- **Being respectful of others**
  Good test = Is this a comment/joke that is at some other groups, ethnicity, political etc. expense?
  Note: Offensive "jokes", slurs or hate speech will NOT be tolerated
  - **This will immediately escalate to a second level offense if it occurs.**
- **Using Non-Profane, Appropriate Language**
  Good test = Is this language you would use in the workplace or in front of your grandmother?
- **Using proper. NON-"Text speak" Language to make Yourself Easily Understood**
  Good test = Could my older boss understand what I have written?

Consequences for Failure to Meet These Expectations

Failure to meet these standards will result in the following consequences in this course:

1st Level=
Written warning from the instructor documenting issue
(No points deductions)

2nd Level=
Mandatory meeting with the instructor and or Department Chair or Division Dean
(Related assignment/Participation subject to Point Deductions)

3rd Level=
College Disciplinary procedures filed with the NC State Judicial Committee as a violation of the NCSC Student Code of Conduct

Links to an external site..
(Course Grade subject to F)

NOTE: For an extreme single incident of disruptive unprofessional behavior I reserve the right to go directly to initiating college disciplinary procedures
NCSC Disciplinary hearings can result in a variety of consequences, including and up to suspension or being expelled from the college.

CLASSROOM DEMEANOR

A. It is assumed that all students at this level of education are mature adults and will respect the rights of all others.

B. Question asking in a positive manner is encouraged. The instructor will be asking questions of you. The only foolish question (that is sincere) is one you don't ask.

C. The instructor is always open to correction if you can prove your case or persuade by reason of your rationale.

D. Talking with others while the instructor is lecturing is not appreciated. Others around you may be trying to hear what is going on. It also gives the instructor the impression you are not interested in what he is saying.

Civility Statement

*To encourage a positive learning environment for the class, the **instructor** will be professional, courteous, respectful, and empathetic to students, and will:*

- Begin and end class on time and be prepared for each class session
- **Provide academic feedback and grade assignments in a timely manner**
- Be available to meet individually with the students
- Clarify assignments and inform students of any changes to the class schedule

*Each **student** is expected to be courteous, respectful, and empathetic to classmates and instructors, and will:*

- **Be in class, on time and prepared for each class session**
- Follow instructions and complete assignments on time
- **Study hard and put forth your best effort**
- Ask questions when you don't understand
- Keep track of your grade status
- Contact instructor right away regarding situations that may interfere with your performance
- Comply with policies found in the College catalog and student handbook

7. GETTING HELP WHEN YOU NEED IT

A. Classmates, textbooks, and the library are some ready resources for getting help.

B. The instructor has a vital stake in your learning and will schedule office hours to accommodate you. Don't be afraid to come to the office whenever your own study efforts are inadequate.

C. Tutoring and other supplemental materials are available in the Student Success Center. This, however, is no replacement for diligent studying.

D. Make studying a habit. Consistency and diligence in sticking to a study schedule are very important in any study program. Don't cram! You'll soon forget the material you're trying to cram in at the last minute.

E. Note that you'll likely spend two hours outside of class or lab studying for every one hour that you spend inside class or lab to adequately understand the material covered.

8. LABORATORY RULES AND PROCEDURES

A. Clean-up and orderliness are the watch words for each lab period.

B. Keep the sink drains cleaned out.

C. Keep the dissection instruments cleaned and dried!

D. Be willing to clean up messes not necessarily of your own making.

9. Special Conditions

A. The student should inform the instructor of any special physical or physiological conditions (including pregnancy) which might require special attention, especially in the laboratory. If needed, the instructor can provide you a list of microorganisms that are used in the lab to show to your health care professional.

Suggestions for success:

- **The single best thing you can do to succeed in class is to** attend class every day**. On average, a student who misses a *single* lecture class scores 3-4% lower on exam scores. Missing even a few lecture classes virtually guarantees a poor exam score.**
- **Review the PowerPoints, the text, and your notes before coming to class and lab.** The surest way to remain confused throughout lecture or lab is to come to class without having read the material.
- **Ask questions, often**, about confusing points in the readings or my lectures. No need to be shy or embarrassed; if you have a question, it means there are others in the class with the same question. There is no such thing as a dumb question.
- **Flashcards** are useful to learn definitions quickly.
- **Take useful notes.** Be prepared when you come to class. You should read the text material for the day and know the general topics to be covered. Make a few notes before class on the text material – you will often forget questions you have during class.
- **Review your notes after class *the same day*.** You should be able to make a general topic outline of the material covered (no details, just the topics covered that day). Begin preparing your study tools (flashcards, vocabulary lists, self-tests, etc.).
- **The next day, review your notes again.** Compare the text with the notes. Recall larger amounts of information without reading from text or notes. Repeat to yourself larger chunks of information. Review your study tools more. Begin to fill in your topical outline with more details without word-for-word copying from the text or notes. Begin to explain the meaning of vocabulary terms in your own words.
- **At the end of the week, review again all the week's notes** and finish your study tools. Prepare more self-tests and begin to teach yourself the material again by repeating it to yourself in large, well organized outline formats. Eventually you should be able to put the information into context – look for relationships to help link together what you are learning.
- **Schedule your time.** Plan on spending *at least* 4-5 hours per week outside of class, reading your text, reviewing daily class notes, preparing for lab, and self-testing. Include an additional 3-4 hours before an exam. Break your studying into small, 20-minute sessions with plenty of breaks.
- Do most of your ***initial* studying alone** – preferably where you can have an hour or two of uninterrupted study.
- Simply *memorizing* your notes is not enough. Many test questions require an understanding of concepts, rather than an ability to recall words or phrases. If you can **explain a concept or process to someone else**, then you understand it. As Albert Einstein said, "You never really understand something unless you can explain it to your grandmother."
- I encourage you to **form study groups** or contact lab partners (if they are willing and able) outside of class to review, discuss and practice explaining the material to each other each week after you have reviewed yourself.
- Prepare for taking tests by **testing yourself, often**. Preparing for an exam begins on the first day you are presented new material and continues every day. NO CRAMMING! You will benefit more from a good night of sleep than hours of frantic last-hour cramming. Use your study tools each day, prepare self-tests and practice, practice, practice!
- Please realize that **I am here to help you**. If you have any difficulty, especially before the first exam, feel free to ask me questions and help clear things up for you; that's why I am here.