



North Central State College

MASTER SYLLABUS	2025-2026
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- A. Academic Division: Health Sciences
- B. Discipline: Science
- C. Course Number and Title: BIOL1550 Microbiology for Health Professionals
- D. Assistant Dean: Heidi Kreglow, PT
- E. Credit Hours: 3
Lecture: 2 hours
Laboratory: 2 hours
- F. Prerequisites: None
- G. Last Course/Curriculum Revision Date: Fall 2023 Origin date: 03/10/2011
- H. Textbook(s) Title:

Open Education Resources (available for download or view)

BIOL 1550: Microbiology (2025) - OER Materials

- Author: Curated/Customized by J. DasGupta
- Copyright Year: 2025
- Edition: 1st
- ISBN:
- OER LINK:

[https://bio.libretexts.org/Courses/North_Central_State_College/BIOL_1550%3A_Microbiology_\(2025\)](https://bio.libretexts.org/Courses/North_Central_State_College/BIOL_1550%3A_Microbiology_(2025))

- I. Workbook(s) and/or Lab Manual: Course lab manual provided by instructor.
- J. Course Description: This course is designed for allied health and nursing majors. It explores the major groups of microorganisms and the role they play in the environment and in disease. The host-parasite relationship, human immunity to disease, epidemiology, and the control of microorganisms are also addressed. Laboratory exercises provide the student with the basic techniques of microbial identification, microscopy, sterile technique, and basic infection control.
- 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	

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. Identify the major historical figures and describe their contribution to the development of modern microbiology.	Lecture quizzes and exams the first third of the semester and end of the semester.
2. Identify the major characteristics of bacteria, including morphology, metabolism, and growth characteristics.	Lecture quizzes and exams the first third of the semester and end of the semester. Lab quizzes the first third of the semester.
3. Describe the major characteristics of the non-bacterial microbes including the Rickettsias, Chlamydias, Fungi, and Protozoa.	Lecture quizzes and exams the second third of the semester and end of the semester.
4. Identify the structure of viruses and describe the cycles of viral reproduction.	Lecture quizzes and exams the second third of the semester and end of the semester.
5. Describe patterns and dynamics by which disease spreads through a human population.	Lecture quizzes and exams the second third of the semester and end of the semester. Lab quiz last week of semester.
6. Identify common pathogens that cause disease in humans and describe some of the basic chemotherapeutic treatments for the disease.	Lecture quizzes and exams throughout the semester.
7. Describe the physical and chemical control methods for microorganisms.	Lecture quizzes and exams throughout the semester. Lab quizzes following Lab Exercises 10, 11, 13, and 14 (in Lab Content section).
8. Become acquainted with common staining and culture techniques used to study microorganisms in the laboratory.	Lab quizzes following Lab Exercises 4 - 8 (in Lab Content section).

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: Biology
Course Coordinator: Jaydip Das Gupta Ph.D.
Course Number: BIOL-1550/BIOL -1550L Course Title: Microbiology for Health Professional
Semester / Session: Summer 2026 (8 weeks) Start / End Date: 5/26/2026 – 7/16/2026

Instructor Information

Name: Jaydip Das Gupta Ph.D. Credentials: M.Sc, Ph.D.
Phone Number: 419-755-4872 E-Mail Address: Jdasgupta@ncstatecollege.edu
Office Location: HS 332 Office Hours: See the course schedule

I. Topical Timeline (Subject to Change):

**Lecture schedule (M/W Online 11am – 12.50 pm)
(Subject to change based on the progress of the course)**

Date	Lecture	Topic
27-May	1	Intro to Microbiology
1-Jun	2	Biochemistry basic
		Exam 1
3-Jun	3	Introduction to prokaryotic cells
8-Jun	4	Introduction to Eukaryotic cells
10-Jun	5, 6	Microbial growth, control of Microbial growth
		Exam 2
15-Jun	7	Microbial Metabolism
17-Jun	8	Genetics
22-Jun	9	Biotechnology
		Exam 3
24-Jun	10	Virus and Prion
29-Jun	11	Antibiotics
		Exam 4
1-Jul	12, 13	Host microbe interaction, Principle of disease
6-Jul	14, 15	Innate immunity and adaptive immunity
		Exam 5
8-Jul	16	Respiratory and Digestive system infection
13-Jul	17	Skin, Urinary and Reproductive system infection
15-Jul		Extra day

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BIOL 1550 Microbiology Lab schedule (Summer 2026) Room HS 317

BIOL 1550-51 Lab meets on Tuesday, Thursday 11am - 12.50pm.
(Schedule may be subject to change based on various factors)

<u>Date</u>	<u>Topic</u>
May 26 th	Introduction: Safety and Laboratory Guidelines Basic Growth Media Preparation (review) Common Aseptic Transfers and Inoculation Methods Ubiquity of Microorganisms
May 28 th	Colony Morphology Exercise Growth Patterns on Slants Exercise Growth Patterns in Broth Exercise
June 2 nd	Introduction to the Light Microscope
June 4 th	Gram stain of known organism
June 9 th	Gram staining of unknown organism (Grading) Endospore and Acid-fast staining method
June 11 th	Endospore and Acid-fast staining (Grading) Serial dilution introduction
June 16 th	Serial dilution experiment
June 18th	Juneteenth (College closed)
June 23 rd	Serial dilution result analysis Differential Test: Phenol Red Broth Starch Hydrolysis Urea Hydrolysis SIM Medium
June 25 th	Analysis of differential Test MacConkey Agar and Methylene Blue Agar
June 30 th	Evaluation of Disinfectants/Antiseptics
July 2 nd	Independence Day observed (College closed)
July 7 th	Hand washing experiment
July 9 th	Antimicrobial Susceptibility Test (Kirby-Bauer test) Differentiation of Gram Positive Cocci Mannitol Salt Agar Catalase Test Blood agar test
July 14 th	Quantitative Indirect ELISA experiment
July 16 th	IN CLASS FINAL

There will be a few lab quizzes, the dates will be announced later based on the progress.

Upon successful completion of this course, the course outcome will be as follows:

Lecture Outcomes	Assessments – How it is met & When it is met
1. Identify four different macromolecules which make up a living cell.	Lecture, lab quizzes and exams throughout the semester.
2. Identify the major historical figures and describe their contribution to the development of modern microbiology.	Lecture, lab quizzes and exams throughout the semester.
3. Classify microorganisms and how they have adapted to and shaped our environment.	Lecture, lab quizzes and exams throughout the semester.
4. Compare and contrast how we visualize microorganisms using different types of microscopes.	Lecture, lab quizzes and exams throughout the semester.
5. Examine morphological and physiological characteristics of prokaryotes microorganisms and infectious particles.	Lecture, lab quizzes and exams throughout the semester.
6. Compare and contrast prokaryotic and eukaryotic microorganisms.	Lecture, lab quizzes and exams throughout the semester.
7. Explain the difference between bacteria and viruses, compare and contrast the life cycle of bacteria and viruses.	Lecture, lab quizzes and exams throughout the semester.
8. Describe the various methods of controlling the growth of microorganisms and the possible impact of improper use of antimicrobial agents.	Lecture, lab quizzes and exams throughout the semester.
9. Explain different steps of the microbial growth curve.	Lecture, lab quizzes and exams throughout the semester.
10. Explain how microbes acquire and process nutrients and convert them into energy and raw materials for cell growth and repair.	Lecture, lab quizzes and exams throughout the semester.
11. Explain the mechanisms of molecular genetics as it relates to microbial function.	Lecture, lab quizzes and exams throughout the semester.
12. Explain some of latest biotechnological trends and how we use it to identify unknown microorganisms with reference to PCR, microarray etc.	Lecture, lab quizzes and exams throughout the semester.
13. Explain the mode of action of different types of antibiotics and impact of antibiotic resistance in microorganisms.	Lecture, lab quizzes and exams throughout the semester.
14. Describe the microbial mechanisms of pathogenicity.	Lecture, lab quizzes and exams throughout the semester.
15. Compare and contrast innate (nonspecific) host defenses and adaptive (specific) host defenses of the human body to protect against infectious diseases.	Lecture, lab quizzes and exams throughout the semester.
16. Describe, discuss and classify select diseases caused by prokaryotic, eukaryotic organisms and infectious particles.	Lecture, lab quizzes and exams throughout the semester.

II. Course Assignments:

1. Quizzes

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2. Tests
3. Skills Testing
4. Independent Studies
5. Homework

III. Grading and Testing Guidelines:

The overall class grade will be determined as follows:

Lecture and lab attendance:	5%
Lecture quizzes and exam:	65%
Lab quizzes:	30%

Total grade:	100%

*****Note: Both lecture and lab attendances are mandatory. After three consecutive absences, I have the authority to report to the Dean/Assistant Dean and administrative withdraw from the course*****

IV. Examination Policy:

Quizzes: There will be a bunch of quizzes given throughout the semester. There will be about 10 questions. Quizzes CANNOT be taken after the due date/time. If you miss a quiz, you will be graded zero for that quiz. There will be three days to take the quiz online. The time frame of the quiz will be found in the assignment folder.

Lecture exam: There will be six (6) exams as mentioned.

Each exam will be worth 100 points, All the lecture exams and Final will be 150 points which will be in-person during the last lab (Absolutely no exception). The questions will be a combination of multiple choice, matching, fill in the blanks or any combination. The format of the exam (online/in person) will be discussed later during class. The time frame of the exam will be mentioned later. **Exams CANNOT be taken after the due date/time. If you miss an exam or quiz, I have the authority to put zero for that missing exam.** It is YOUR responsibility to take the exam on time!

The reasons why a student will be excused from taking an exam or quiz:

- a. Hospitalization (with documented verification)
- b. Death in the immediate family (with documented verification)
- c. Personal illness or illness in immediate family - (doctor's excuse required).
- d. Missing exam/quiz for vacation/fun will absolutely not be excused by any means. I have the full authority to grade zero.**

V. Class Attendance/Assignments and Make-Up Policy:

The lecture will be via Zoom and attendance is mandatory. The laboratory will be in-person. The Zoom links for the lectures will be under the Zoom folder. The instructor needs to be notified as soon as possible if a student needs to miss lecture/lab or will be unable to turn in an assignment on time. Excuses/Extensions (for illness, family emergencies, etc.) can be made on a case-by-case basis, but are granted very rarely and are not guaranteed.

Every student should have their camera on during the entire Zoom lecture session. I have the authority to mark you absent for camera off during the session.

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*:

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- **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 diversity**
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.

Resources:

- [University Etiquette 101: How to Deal with Your Professors \(Links to an external site.\)](#)
- [Email Etiquette for Students](#)