



Microbiology (BIO 203) COLS, Dept. Mathematics & Natural Sciences Course Outline

Instructor: Mr. T. Kennedy

Office Hours: via email and Virtual Office

Contact Phone:

Contact Email: tmkenedy8@gmail.com

COURSE DESCRIPTION

Microbiology 203 is a systematic examination of microbiological principles and applications. “This course will introduce the students to the vast and unseen world of microorganisms, including both pathogenic and nonpathogenic forms. A basic understanding of the kingdoms of living beings, cell structure, prokaryotic and eukaryotic cells, cellular metabolism and methods of reproduction is necessary before focusing on the organisms of clinical interest. Topics include: the pathogenicity and toxicity of microorganisms, and the role of the opportunistic pathogens in human disease, including bacteria, fungi, protozoan, viruses, parasites, and prions. The epidemiology of the most common disease-causing organisms will be reviewed, with an emphasis on understanding their method of pathogenicity and mode of transmission so as to aid in preventing and controlling infection. The fundamentals of the immune response to infection will be included, as well as a retrospective on the emergence of HIV, and an awareness of newly emerging disease threats such as Ebola and SARS.”

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

1. Describe historical aspects of microorganisms' impacts on human societies.
2. Describe the characteristics of bacteria, virus, fungi, protozoa, parasites and prions as they relate to medical microbiology.
3. Compare the differences between prokaryotic and eukaryotic cells.
4. Describe the fundamentals of microbial reproduction, growth and control.
5. Explain pathogenic features of disease causing microbes.
6. Describe the basic immune response to infection by microbial agents.

REQUIRED TEXTBOOK(S)

Openstax: ASM Press. Microbiology. <https://openstax.org/details/books/microbiology/>

2 options: (1) download the PDF or (2) purchase a printed hardcopy

COURSE METHODS

To master the course, the student should be prepared to dedicate about 10 hours each week to study the content, as well as 3 to 4 hours each week completing the homework assignments. It is important to remember that an online course requires much more self-direction, self-discipline, and self-motivation than a traditional onsite course. The student can use e-mail or Virtual Office to support communication with the instructor in order to promptly receive advice or solve any issues.

Threaded Discussions

There will be two threaded discussion forums in each week.

- Part 1: Topic questions. Students are required to post original discussion thread on the assigned topic questions.

Original threads

- When initiating thread students should seek to engage a dialog with the class on a microbiology related topic that the instructor specifies. These posts needs to be at least a few paragraphs and should not exceed a page. It must be at least 250 words. Your post should include a credible reference. Your original thread should be place on Blackboard Discussion Forum of each week. When initiating these threads, students should use their own voice and include links (especially if reporting on a news article related to bioscience). Posts about ideas and observations pertaining to one of the labs/biology concepts are also often strengthened by linking to online information. These posts should explain what the student found interesting or compelling about the topic and seek to interest others on the issue. **This original thread is due by Friday 11:59 pm PST every week.**

- Part 2: Peer Response. Students are required to read other students' posts and reply to at least two (2) of their classmates with constructive and engaging feedback.

Follow-up Responses

- By responding to the posts of others in a responsible and meaningful way other students can satisfy their quota (at least twice per week) for meaningful responses. Add to the discussion; add additional relevant information to other students topic such as links to credible sites, articles, and probing questions. Responses such as "good point" or "I agree" can be important to dialog but do not count towards a student's meaningful follow-up responses. Add a reference to support your follow-up responses. The response threads should be at least 200 words and substantively meaningful. **All follow-up posts for each week are due by Sunday night at 11:59 PM PST.**

Collaborate Sessions

Live sessions using Blackboard Collaborate are optional and done at the discretion of the Instructor.

COURSE GRADING

Students are responsible for:

1. Completing all assigned reading. Plan time to read material multiple times.
2. Review PowerPoint slides and pre-recorded lectures. Review all materials posted in Blackboard.
3. Completing three Exams
4. Complete 5 quizzes
5. Complete weekly discussion posts: original thread and 2 follow-up responses to peers' threads
6. Make 1 presentation on a specific microbial topic.
7. Complete 2 case studies on specific microbial topics

Assignments

Week 1-8 Discussion Board (15 pts. each week)	120 points
Week 8 PowerPoint presentation (Picking topic & creating PowerPoint)	55 points
Case Studies (20pts each)	40 points
Lecture Exam 1	100 points
Lecture Exam 2	100 points
Lecture Exam 3	100 points
Quizzes 1-5 (30 pts each)	150 points
TOTAL	665 points

Grade Correlation

96 -100	A	74 – 76	C
90 - 95	A-	70 – 73	C-
87 – 89	B+	67 – 69	D+
84 – 86	B	64 – 66	D
80 – 83	B-	60 – 63	D-
77 – 79	C+	< 59	F

Late work and missed exam policy

The late paper policy for homework assignments is to be specified by the instructor. Otherwise late assignments: for each day after the due date that an assignment is turned in late, its point credit will be reduced by 25%. In case a student cannot take an exam on the scheduled day because of extraordinary circumstances, he/she must warn the instructors; then the exam will be rescheduled without a loss in points. The instructor may require proof of extraordinary circumstance (health, family, or work emergencies).

Exams & Quizzes

There will be three unit examinations. There will be **NO MAKE-UP** examination given. Each exam and quizzes are timed. The questions will consist of: multiple choices, T/F, and matching. Changes in exam and quiz dates will be announced at least a week in advance. Health, family, or work emergencies may be considered. Students must produce written evidence of an emergency (e.g. official letter from work, police, or hospital) to be able to make up exams.

Week 8, PowerPoint Presentation Criteria:

1. Must be a pathogen topic (bacteria, fungi, helminths, or virus).
2. Must include data from at least 1 peer-reviewed article (primary research). These can be obtained from NU Library: <http://library.nu.edu/>.
3. Must have at least 5 other credible resources. Wikipedia, Blogs, Encyclopedia, or other non-credible sources will not count towards references.
4. The poster will be a PowerPoint with bullet points of concepts and information obtained from your research. Make a PowerPoint with bullet points of concepts and information obtained from your research. PowerPoint should contain at least **11** slides of information plus 1 title slide and 1 reference slide (in APA format). Title and reference slides do not count in your required number of slides.
5. Address the following for the disease**:
 - Clinical manifestation
 - Etiology
 - Epidemiology

Transmission
 Mechanism of pathogenicity
 Diagnostic tests
 Treatment
 Immunization recommendation
 Control measures
 Take Home message

Note **: data from the primary research article must be included in this PowerPoint presentation.

6. Write your talk in the note section of the PowerPoint. These notes should contain details from your research and not just general information. The notes should be in your own words and not a copy/paste from your research. This video will help you add speaker notes in PowerPoint: <https://support.office.com/en-ie/article/add-speaker-notes-to-your-slides-26985155-35f5-45ba-812b-e1bd3c48928e>
 The submitted presentation will be run through a plagiarism checker (SafeAssign).
7. Create a 2 to 3-minute video summarizing your presentation and the Central message.
8. Submit your PowerPoint and Presentation Video in Assignment folder. **Due by Week 8 on Wednesday 11:59 pm PST USA. No late submission.**
9. In Week 8 Discussion Board (DB), create an original thread and upload your PowerPoint.
10. Review 2 of your classmates' PowerPoint presentation in Week 8 Discussion Board folder. Write a substantive response to at least 2 PowerPoint presentations. A simple "good presentation" will not receive DB points.

Schedule of classes

We will follow this schedule as closely as possible. Changes to the schedule will be announced.

Microbiology 203 Schedule

Date/ 2020	Lecture Topics – Review folder	Assignments
Week 1 8/31	Introduction of Microbial World Principles of Chemistry and Biomolecules	Quiz 1 (8am- Saturday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 2 9/7 Labor Day (9/12 make up)	Principles of Chemistry and Biomolecules The Cell – Structures and Functions	Quiz 2 (8am – Saturday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 3 9/14	Eukaryotic and Prokaryotic Microorganisms	Lecture Exam 1 (8am-Saturday) Case Study 1 Due (Monday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 4 9/21	Microbial Genetics and Biotechnology	Quiz 3 (8am -Saturday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST. Submit presentation topic.

Week 5 9/28	Microbial Growth and Control of Growth	Lecture Exam 2 (8am- Saturday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 6 10/5	Viruses, Virioids, and Prions Innate and Adaptative Immunity	Quiz 4 (8am- Saturday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 7 10/12	Microbial Diseases: Cardiovascular & Lymphatic Systems Digestive System Nervous System	Quiz 5 (8am- Saturday) Case Study 2 Due (Monday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.
Week 8 10/19	Microbial Diseases: Respiratory System Skin and Eyes Urinary and Reproductive Systems	Lecture Exam 3 (6:00pm -Monday) Presentation due (Monday) DB: Original thread due by Friday midnight PST. 2 follow-up discussion response due by Sunday midnight PST.

NATIONAL UNIVERSITY RESOURCES AND POLICIES

Student Accessibility Services

National University is committed to providing equitable access to learning opportunities for all students. Student Accessibility Services (SAS) is the office that collaborates with students who have disabilities and faculty members to provide and/or arrange reasonable accommodations.

- If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact SAS at sas@nu.edu or 858.521.3967 to arrange a confidential discussion regarding equitable access and reasonable accommodations. To receive any course-related adaptation or accommodation, the student must first be registered with SAS; registration information and steps can be found by visiting www.nu.edu/sas. The SAS team works with students confidentially and does not disclose disability-related information without his/her permission.
- If you are already registered with SAS and have a current accommodation letter outlining approved accommodations, we encourage you to contact your instructor early in the term, by the first class session preferably, to review how the accommodations will be applied in the course. You are encouraged to arrange a confidential phone or in person meeting with your professor to discuss the approved accommodations.

Plagiarism

Plagiarism is the presentation of someone else's ideas or work as one's own. Students must give credit for any information that is not either the result of original research or common knowledge. If a student borrows ideas or information from another author, he/she must acknowledge the author in the body of the text and on the reference page. Students found plagiarizing are subject to the penalties outlined in the Policies and Procedures section of the University Catalog, which may include a failing grade for the work in question or for the entire course.

- Plagiarism means using another person's work, writing, words, ideas, research, graphics, programs, music, pictures, data, and/or other creative expression without giving the other person full credit. Student must enclose another person's words in quotation marks, cite the appropriate source(s), and give citations when using the ideas of another person, even if those ideas are paraphrased. The following is one of many websites that provide helpful information concerning plagiarism for both students and faculty:
- Any time information from a source is used, it must be cited.

Ethics

Ethical behavior in the classroom is required of every student. The course will identify ethical policies and practices relevant to course topics.

Technology

Students are expected to be competent in using current technology appropriate for this discipline. Such technology may include word processing, spreadsheet, and presentation software. Use of the internet and e-mail may also be required.

Diversity

Learning to work with and value diversity is essential in every class. Students are expected to exhibit an appreciation for multinational and gender diversity in the classroom.

If you need accommodations due to a documented disability, please contact the Office of Scholarships and Special Services at (858) 642-8185 or via e-mail at specialservices@nu.edu.

Accommodations can only be granted upon approval by the Committee for Students with Disabilities (CSD). Students should make the instructor aware of any documented disabilities as soon as possible.

Civility

As a diverse community of learners, students must strive to work together in a setting of civility, tolerance, and respect for each other and for the instructor. Rules of classroom behavior (which apply to online as well as onsite courses) include but are not limited to the following:

- Conflicting opinions among members of a class are to be respected and responded to in a professional manner.
- There are to be no offensive comments or language

Math Center

Tutoring services in the fields of mathematics, sciences, engineering and business mathematics, including help with calculator usage, Excel, SPSS and Minitab applications are included in the study assistance extended to National University students.

Mathematics tutors are available free of charge to National University students. Since the request for help is online, any student from any National University academic center can access this service.

Tutors are available Monday through Thursday afternoons and evenings and by appointment on weekends. Once a student makes an appointment at through the online Math Center, a math tutor is assigned to contact the student and arrangements can then be made between tutor and student.

URL: <https://www.nu.edu/OurPrograms/StudentServices/mathcenter.html>

Writing and Critical Thinking Across the Curriculum

Students are expected to demonstrate writing and critical thinking skills in describing, analyzing and evaluating ideas and experiences. Written reports and research papers must follow specific standards

regarding citations of an author's work within the text and references at the end of the paper. Students are encouraged to use the services of the University's Writing Center when preparing materials.

URL: <https://www.nu.edu/OurPrograms/StudentServices/WritingCenter.html>

The following website provides information on APA, MLA, and other writing and citation styles that may be required for term papers and the like: <http://nu.libguides.com/citations>

National University Library

National University Library supports academic rigor and student academic success by providing access to scholarly books and journals both electronically and in hard copy. Print materials may be accessed at the Library in San Diego or through document delivery for online and regional students. Librarians are available to provide training, reference assistance, and mentoring at the San Diego Library and virtually for online or regional students. Please take advantage of Library resources.

URL: <http://library.nu.edu>.

Contact the Library:

- RefDesk@nu.edu
- (858) 541-7900 (direct line)
- 1-866-NU ACCESS x7900 (toll free)

The following website might be useful for you to find peer-reviewed, research articles on your PowerPoint presentation topic.

Google Scholar

NCBI: <https://www.ncbi.nlm.nih.gov/pubmed/>

NU Library: <https://library.nu.edu/>

PLOS: <https://www.plos.org/>

Help for Blackboard: 1-(866) 628-8988 or SCS@nu.edu