

## 388373: Microbiology for Nonmajors

MIMG-XL 6

### Description

Designed for non-science students; introduction to biology of microorganisms (bacteria, viruses, protozoa, algae, and fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. Not open for credit to students with credit for course 101. Transferable for UC credit.

### Objectives

The specific aim of the following course is for students to gain an understanding of the

1. biology and diversity of microorganisms;
2. underlying principals that govern microbial evolution;
3. interplay between the immune response and foreign invaders; and lastly,
4. various biotechnological and industrial applications.

### Materials

#### Microbiology: A Human Perspective

**Author:** Denise Anderson, Sarah Salm, Mira Beins, Eugene Nester

**Publisher:** McGraw-Hill

**Edition:** 10th

**ISBN:** 1260735508

### Evaluation

#### Criteria

Please note that all grades are final when filed by the instructor on the Final Grade Report.

Course grades will be based on the following breakdown of points:

Type	Weight	Topic	Notes
4 In Class Quizzes	25 Points Each / 100 Points Total		There will be a total of four in class quiz's, administered before lecture, at the beginning of class. No 'make-up' quiz's will be given. Unforeseen problems sometimes do occur, so PLAN AHEAD and make sure to attend all lectures.
Case Studies	15 points		There will be a total of 4 case studies for you to complete, as take home assignments.

Type	Weight	Topic	Notes
Case Studies	7 Points	Microscopy Case Study	The following microscopy case study is a homework assignment.
Midterm Exam	76 Points		There will be one midterm exam and one final exam. The midterm exam will be administered during lecture of week 6, and the final exam will be held during lecture of week 11. The midterm exam will comprise of 75 multiple choice questions, encompassing subject matters covered during weeks 1 to 6. The final exam will comprise of case studies with short answer and multiple choice questions, encompassing subject matters covered during weeks 7 to 10. The allotted time will be 1 hour and 30 minutes for each exam. Re-grades are permitted on the midterm exam, but not on the final exam. No 'make-up' exams will be given. <u><i>There will be no make-up exams approved for this course</i></u>
Final Exam	50 Points		There will be one midterm exam and one final exam. The midterm exam will be administered during lecture of week 6, and the final exam will be held during lecture of week 11. The midterm exam will comprise of 75 multiple choice questions, encompassing subject matters covered during weeks 1 to 6. The final exam will comprise of case studies with short answer and/or multiple choice questions, encompassing subject matters covered during weeks 7 to 10. The allotted time will be 1 hour and 30 min for each exam. Re-grades are permitted on the midterm exam, but not on the final exam. No 'make-up' exams will be given. <u><i>There will be no make-up exams approved for this course</i></u>
Term Paper	100 Points		<p>Infectious diseases have killed more people than any other single cause, and have remained the primary source of morbidity and mortality worldwide. Infectious diseases are disorders caused by microorganisms – such as bacteria, viruses, fungi or parasites. Many of these organisms are part of our bodies' microflora, and are generally beneficial, but under certain circumstances they may lead to disease. Furthermore, other infectious diseases can be transmitted directly or indirectly: from one person to another, from insects or animals, or can be acquired by ingestion of contaminated foods and water, as well as by environmental exposure. Accordingly, our ever growing world population is facing new challenges such as emerging and re-emerging infectious disease associated with globalization and increased populations of immunocompromised individuals. Therefore, the prescription and/or administration of an antimicrobial and the potential emergence of resistance among pathogenic microbial isolates requires a working knowledge of the diversity of infectious agents, testing and profiling techniques used to identify them, treatment modalities and preventative actions. Accordingly, the objectives of the following term paper is to acquaint students with performing original literature research pertaining to various aspects of a particular infectious agent, ranging from its history and discovery to morphology and growth characteristics to mechanisms of pathogenicity and the availability of treatment or preventative options, and lastly public health related management strategies or policies.</p> <p>To that end, each student will be select an infectious agent of their interest at the beginning of the quarter, and research their chosen infectious agents outside of class using textbooks, web resources, and current literature. You will be expected to prepare a, six to eight page, written paper covering the various aspects of an your infectious disease of choice in accordance to the topics listed below.</p> <ul style="list-style-type: none"> <li>• Taxonomic classification</li> <li>• History and interesting facts</li> <li>• Notable outbreaks</li> <li>• Morphological and growth characteristics</li> <li>• Disease geography</li> <li>• Rout of transmission / Life cycle</li> <li>• Mechanisms of pathogenesis</li> <li>• Diagnosis / symptoms</li> <li>• Treatment modalities / availability of vaccine</li> <li>• Public health initiatives / preventative actions</li> <li>• References</li> </ul> <p>The final, submitted, paper must include the above mentioned topics organized into sections with headings. Please double-space all your text. Use 1" margins all round. Use 12 pt font. The minimum number of pages should not be</p>

Type	Weight	Topic	below 6 pages and maximum length should not exceed 8 pages (references not included). Notes									
			<p><b>A minimum of 8 primary literature citations should be used for the paper.</b> Articles must be cited by author(s) and year within your text. For example, if there is a single author, the last name and year will suffice – e.g. (Hutchinson, 1995). If there are two authors, include both names and the year of the publication – e.g. (Hutchinson and Osborne, 1978). For more than two authors, use the first author with et al. – e.g. (Hutchinson et al., 1984). Include the list of references at the end of your paper. Do not include references you have read but not cited. List the references alphabetically by the first author's last name followed by initials for first and middle name. All authors should be named in the citation. If there are more than five, list the first five author's name followed by et al. Include the year published in parenthesis, followed by the full title for each cited article. Use MEDLINE/PubMed abbreviations of journal titles or use the full journal title for any journals not indexed in MEDLINE. Provide volume and issues for journal articles as applicable. Provide DOI numbers if volume/issue numbers are not available. Provide inclusive page ranges for journal articles and book chapters. Provide date of access for online sources. <b>The only online resources that can be used is NIH.gov, CDC.gov and FDA.gov,</b> Cite databases in the text.</p> <ul style="list-style-type: none"> <li>Journal articles should be cited as follows: Neuhaus J-M, Sitcher L, Meins F, Jr, Boller T (1991) A short C-terminal sequence is necessary and sufficient for the targeting of chitinases to the plant vacuole. Proc Natl Acad Sci USA 88(22):10362-10366.</li> <li>Articles or chapters in books are cited as follows: Hill AVS (1991) HLA associations with malaria in Africa: some implications for MHC evolution. Molecular Evolution of the Major Histocompatibility Complex, eds Klein J, Klein D (Springer, Heidelberg), pp 403-420.</li> </ul> <p>Microorganisms must be named using binomial nomenclature, with the exception of viruses. Binomial nomenclature employs the names of the two lower level taxa, genus and species. Conventions when using binomial nomenclature include: genus comes before species and is always capitalized. Species name is never capitalized. Both names are always italicized. For example, <i>Escherichia coli</i>. If the name appears in several places in throughout the text you can abbreviate the genus name after it has been written in full length for the first time. For example, the abbreviation of <i>Escherichia coli</i> is <i>E. coli</i>. When specifying a particular strain, the genus name comes first, species name is second and strain name is last, followed by the serovar. The prefix subsp. is generally used to signify the strain. Everything should be italicized except the prefix subsp. and the serovar - <i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Dublin. If the species is not fully identified, than the abbreviation "sp." in the singular or "spp." in the plural is used (e.g., <i>Salmonella</i> spp.). In this case, the name of the genus is written in italic, and sp. and spp. are written in normal font.</p> <p>If figures are included, number them consecutively and give each a caption, as well as refer to them in your text by their number. Make sure that you include all the information necessary to interpret your figures. If figures are taken from other works, make sure you cite their original source.</p> <ul style="list-style-type: none"> <li>The term paper is due the last day of class, on the day of the final exam.</li> </ul> <p><b><u>Final Paper Rubric</u></b></p> <table border="1"> <tbody> <tr> <td><b>Grading Criteria</b></td> </tr> <tr> <td><b><u>Formatting</u> (25 points)</b></td> </tr> <tr> <td>Is the main body broken down into sub-headings?</td> </tr> <tr> <td><b><u>Research</u> (20 points)</b></td> </tr> <tr> <td>Does the outline reflect sufficient and appropriate knowledge of the project topic?</td> </tr> <tr> <td><b><u>Scope</u> (20 points)</b></td> </tr> <tr> <td>Is it comprehensive coverage of the topic – long enough to meet page length requirement?</td> </tr> <tr> <td><b><u>Content</u> (20 points)</b></td> </tr> <tr> <td>Does it address all questions in the prompt?</td> </tr> </tbody> </table>	<b>Grading Criteria</b>	<b><u>Formatting</u> (25 points)</b>	Is the main body broken down into sub-headings?	<b><u>Research</u> (20 points)</b>	Does the outline reflect sufficient and appropriate knowledge of the project topic?	<b><u>Scope</u> (20 points)</b>	Is it comprehensive coverage of the topic – long enough to meet page length requirement?	<b><u>Content</u> (20 points)</b>	Does it address all questions in the prompt?
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Type	Weight	Topic	<del>Notes</del> Citations (15 points)
			Does it cite at least three peer reviewed research or review publications?

## Breakdown

97% - 100% A+      94% - 96% A      90% - 93% A-

87% - 89% B+      84% - 86% B      80% - 83% B-

77% - 79% C+      74% - 76% C      70% - 73% C-

67% - 69% D+      64% - 66% D      60% - 63% D-

59 and Below F

## \* Course Policies

### Extra Credit Assignment

For extra credit, students may submit an additional microbial journal, 4 pages long (references included). A minimum of 4 primary literature citations should be used for the paper. The organism chosen for the extra credit assignment must belong to a different taxonomic kingdom than the one chosen for the term paper. Although much shorter in length, the extra credit assignment should be polished, well written and must include all of the various aspects / topics listed above in bullet-point format. The extra credit assignment is worth 10 points, added to your overall grade, and is due the last day of class along with your term paper.

### Class Participation

I hope that you will make the commitment to participate both in class and in online discussions. The classroom should be active all week, not just during class hours. Your class participation should incorporate responses to your peers, your opinions, pertinent information regarding subjects covered in class, from things that you've read, and examples from your experience. Your responses should include more than phrases such as "I agree with that" or "Interesting comment." The distinguishing feature of a well done class discussion might include an objective and critical analysis of lecture notes, reading assignments and what you have experienced. In the spirit of scholarly discussion, I expect responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help you test your ideas, reinforce what you have learned, and share resources with others in the class.

## Institutional Policies

### Student Conduct

Students are subject to disciplinary action for several types of misconduct or attempted misconduct, including but not limited to dishonesty, such as cheating, multiple submission, plagiarism, or knowingly furnishing false information to the University; or theft or misuse of the intellectual property of others or violation of others' copyrights. Students are encouraged to familiarize themselves with policy provisions which proscribe these and other forms of misconduct at:

<https://www.uclaextension.edu/pages/str/studentConduct.jsp> (<https://www.uclaextension.edu/pages/str/studentConduct.jsp>)

### Services for Students with Disabilities

In accordance with the Americans with Disabilities Act of 1990, UCLA Extension provides appropriate accommodations and support services to qualified applicants and students with disabilities. These include, but are not limited to, auxiliary aids/services such as sign language interpreters, assistive listening devices for hearing-impaired individuals, extended time for and proctoring of exams, and registration assistance. Accommodations and types of support services vary and are specifically designed to meet the disability-related needs of each student based on current, verifiable medical documentation. Arrangements for auxiliary aids/services are available only through UCLA Extension's Service for Students with Disabilities Office at (310) 825-7851 or by

email at [access@uclaextension.edu](mailto:access@uclaextension.edu). For complete information see:  
<https://www.uclaextension.edu/pages/str/studentswithDisabilities.jsp>  
(<https://www.uclaextension.edu/pages/str/studentswithDisabilities.jsp>)

## Incompletes

Your instructor may post the interim grade *Incomplete/I* if at the end of the class your overall work is of passing quality but a portion could not be submitted for understandable reasons (e.g. illness). It is your responsibility to petition your instructor for permission to submit work late and to provide an explanation, and it is his or her sole decision whether to accept the explanation. If permitted, the *Incomplete/I* grade will be posted and a time frame defined for you to submit the missing work, ranging from one to twelve weeks. *Incomplete/I* grades that remain unchanged after twelve weeks will lapse to *F*, *NP* or *U*. Receiving an *I* grade entitles you to submit only the missing work your instructor has agreed to accept late, and does not allow other work to be retaken or oblige UCLA Extension to provide continuing access to course materials via Canvas. The *Incomplete/I* grade is not an option for courses that do not bear credit, such as 700, 800, or 900-level courses. For complete information, see:

<https://www.uclaextension.edu/pages/str/grading.jsp> (<https://www.uclaextension.edu/pages/str/grading.jsp>)

## All Grades are Final

No change of grade may be made by anyone other than the instructor, and then, only to correct clerical errors. No term grade except *Incomplete* may be revised by re-examination. The correction of a clerical error may be authorized only by the instructor of record communicating directly with personnel of Student and Alumni Services.

## Sexual Harassment

The University of California is committed to creating and maintaining a community where all individuals who participate in University programs and activities can work and learn together in an atmosphere free of harassment, exploitation, or intimidation. Every member of the community should be aware that the University prohibits sexual harassment and sexual violence, and that such behavior violates both law and University policy. The University will respond promptly and effectively to reports of sexual harassment and sexual violence, and will take appropriate action to prevent, to correct, and when necessary, to discipline behavior that violates our policy.

All Extension students and instructors who believe they have been sexually harassed are encouraged to contact the Department of Student and Alumni Services for complaint resolution: UCLA Extension, Suite 113, 10995 Le Conte Ave., Westwood; Voice/TTY: (310) 825-7031. View the University's full Policy on Sexual Harassment and Sexual Violence at <http://policy.ucop.edu/doc/4000385/SHSV> (<http://policy.ucop.edu/doc/4000385/SHSV>).

## Additional Items

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### Protecting Privacy and Data During Live Instruction

Live meeting sessions for this class, when applicable, are being conducted over Zoom. As the host, the instructor may be recording live sessions. Only the host has the ability to record meetings, no recording by other means is permitted. Recorded sessions will be posted in the Videos area of this class unless otherwise notified. Due to privacy, recordings are not available for download and are only accessible via Canvas for the duration of the class. If you have privacy concerns and do not wish to appear in the recording, do not turn on your video and/or audio. If you also prefer to use a pseudonym instead of your name, please let the instructor know what name you will be using so that the instructor knows who you are during the session. To rename yourself during a Zoom meeting, click on Participants, click on your name, click on More, click on Rename. If you would like to ask a question, you may do so privately through the Zoom chat by addressing your chat question to the instructor only (and not to "everyone"). Additionally, chat may be used and moderated for live questions, and saving of chats is enabled. If you have questions or concerns about this, please contact the instructor via Canvas Inbox.

Pursuant to the terms of the agreement between Zoom and UCLA Extension, the data is used solely for this purpose and Zoom is prohibited from re-disclosing this information. UCLA Extension also does not use the data for any other purpose. Recordings will be deleted when no longer necessary. However, recordings may become part of an administrative disciplinary record if misconduct occurs during a video conference.

## Course and Instructor Evaluation

UCLA Extension values your feedback on course and instructor evaluations. We ask all students to take a few minutes to complete an end-of-course evaluation survey. Updates to the course and instruction are influenced by your feedback. Understanding your student experience is essential to ensure continuing excellence in the online classroom and is appreciated by your instructor and the UCLA Extension academic leadership.

Your participation in a survey is voluntary, and your responses are confidential. After instructors submit grades, they will be given an evaluation report, but this report will not contain your name.

## Course Syllabus Subject to Update by the Instructor

### Make-Up Exam Practice

All requests to make-up or reschedule an exam must be **directly** submitted by **written petition** to the **Department of Health Sciences and Sciences**. Only petitions related to extreme and emergent situations or religious holidays will be considered. The petition must be accompanied by verifiable supporting **documentation** of the inability to attend the exam (in the case of an illness or medical emergency, documentation from a licensed health care professional is required). Examples of extreme and emergent situations may include: accident, death, injury, or serious illness. **Petitions must be submitted to the Department *immediately* upon recognition of the inability to take the exam or *within 24 hours* after the exam takes place in an unexpected emergency situation.** Make-up exams can be denied at the discretion of the department.

## About Your Online Course Materials

Please note the following about online course components at UCLA Extension:

- Students must have basic computer skills, including the use of word processing software, email, and the ability to use internet browsers, such as Safari, Firefox, or Chrome.
- Students are responsible for meeting the technical requirements of Canvas and familiarizing themselves with the Canvas Learning Management System.
  - What are the basic computer specifications for Canvas? - <https://community.canvaslms.com/docs/DOC-10721> (<https://community.canvaslms.com/docs/DOC-10721>)
  - Which browsers does Canvas support? - <https://community.canvaslms.com/docs/DOC-10720> (<https://community.canvaslms.com/docs/DOC-10720>)
- Students are responsible for keeping a copy of all assignments and work submitted, and to be aware of all assignments, due dates, and course guidelines.
- Students are encouraged to keep and/or download a local copy of their assignment files, as **access to the online environment of a specific course is limited to 30 days after the final course date**, as listed in the course catalog.

To download all your assignment submissions in Canvas, please refer to the [online support guide](https://community.canvaslms.com/docs/DOC-10606). (<https://community.canvaslms.com/docs/DOC-10606>) for more information or contact Canvas Support via the help menu within Canvas.

## UCLA Extension Canvas and Learning Support

For **immediate 24/7 Canvas technical support**, including holidays, click on **Help** (located on the menu to the left) where you can call or chat live with a Canvas Support representative.

### UCLA Extension Instructional Design and Learning Support

The UCLA Extension Learning Support staff assists both students and instructors with Canvas-related technical support, as well as general and administrative questions.

Learning Support staff is available Monday through Friday, from 8 AM to 5 PM (Pacific Time), except holidays:

- Email: [support@unexonline.zendesk.com](mailto:support@unexonline.zendesk.com)
- Website: <http://support.uclaextension.edu> (<http://support.uclaextension.edu/>)

## Campus Safety Escorts

For students taking classes held on the UCLA campus and in and around Westwood Village, the UCLA Police Department provides a free walking escort service every day of the year from dusk until 1 a.m. Community Service Officers (CSOs) are available to walk

students, faculty, staff members and visitors to and from anywhere on campus, in Westwood Village, and in the village apartments. CSOs are uniformed students who have received special training and are employed by the UCLA Police Department. To obtain an escort, please call (310) 794-9255 and allow 15 to 20 minutes for your escort to arrive. For complete information, see: <https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-escorts> (<https://www.ucpd.ucla.edu/services/community-service-officers-csos/evening-escorts>)

## Schedule

Date	Topic
Week 1	<p>History of Humans and the Microbial World and the Molecules of Life (Chapters 1 &amp; 2)</p> <p>Microscopic analysis of Prokaryotes v.s Eukaryotes, their Identification and classification (Chapter 3 &amp; 10)</p> <p>Microscopy Case Study</p>
Week 2	<p>From DNA to proteins: Transcription vs. Translation (Chapter 7)</p> <p>Mechanisms of Microbial Diversity (Chapter 8)</p> <p>Quiz 1</p>
Week 3	<p>Dynamics of Prokaryotic Growth and Control (Chapters 4 &amp; 5)</p> <p>Viruses &amp; Antimicrobial Medication (Chapter 13 &amp; 20)</p> <p>Case Study 1</p>
Week 4	<p>Innate and Adaptive Immune Response (Chapter 14 &amp; 15)</p> <p>Host Microbe Interactions / Hypersensitivity Reactions (Chapter 16 &amp; 17 pg. 401 - 411)</p> <p>Quiz 2</p>
Week 5	<p>Biotechnology / Applications of Immune Responses (Chapter 9 &amp; 18)</p> <p>Epidemiology (Chapter 19)</p> <p>Case Study 2</p>

<b>Week 6</b>	<b>Midterm Exam</b>
<b>Week 7</b>	Respiratory System Infections (Chapter 21) Case Study 3
<b>Week 8</b>	Skin Infections (Chapter 22) Wound Infections (Chapter 23) Quiz 3
<b>Week 9</b>	Digestive System Infections (Chapter 24) Case Study 4
<b>Week 10</b>	Nervous System Infections (Chapter 26) Quiz 4
<b>Week 11</b>	<b>Final Exam</b>