

Course Syllabus

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HON 2015G


Course Title: Applied Microbiology

Credits: 3.0

Course Description: This course is a survey of microbiology covering bacteria, viruses, fungi, and protozoa. Students are introduced to cellular structure, growth, protein synthesis, and replication and learn the role of microorganisms in human disease, the stages of infection, and diagnosis. The role and action of antibiotics, sterilization, and antimicrobials are also covered.

This course uses current research in midwifery and obstetrics to broaden the student's understanding of the NARM skills and MEAC essential competencies learned in the clinical preceptorships.

Learning Objectives

Learning Objectives  (https://ncm.instructure.com/courses/619/files/14664/download?download_frd=1) are provided in the spreadsheet that lists the overlapping MEAC Essential Competencies and the NCM Degree Qualification Profiles for Applied Microbiology.

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

- survey important "milestones" in the history of microbiology.
- compare and contrast the structures and functions of macromolecules found as components of microbial agents/microorganisms.
- compare and contrast different types of metabolism/metabolic pathways employed by different types of microbes.
- compare and contrast different types of microbial agents and microorganisms with respect to morphology, physiology, and phylogeny.
- integrate concepts of gene expression, natural selection, and evolution in the context of microbiological organisms.
- demonstrate and operate a microscope to examine microscopic life including bacteria, protozoa, algae, fungi, helminths, and arthropod vectors.
- differentiate bacterial cultures by using staining techniques.
- compare the use of different types of microbial media for isolation and identification of bacteria and fungi

and range.

- classify unknown bacteria by performing metabolic tests.
- incorporate aseptic/sterile techniques in all laboratory experiments.
- compare and explain the effects of physical and chemical factors in controlling microbial growth and perform antibiotic sensitivity tests.
- explain the role of bacteria in biofilm formation and nitrogen cycling as important aspects of prokaryotic ecology.
- explain aspects of host non-specific and specific defenses against microbial pathogens

Note: The NARM /Clinical Skills requirement is completed throughout the ASM apprenticeship during actual clinical practice. IT IS NOT a requirement to complete this academic course. Full mastery of microbiology concepts will be determined as students demonstrate knowledge and apply skills during their clinical preceptorships.

Learning objectives have been developed to provide mastery of the necessary skills and competencies consistent with:

<http://www.midwiferycollege.org/AcademicProgram/Downloads/ASM/Clinical/Form-NARMSkills.pdf>) **MEAC Abbreviated NARM Skills Form**

MEAC Core Competencies for Midwives (<http://meacschools.org/wp-content/uploads/2014/12/Curriculum-Checklist-of-Essential-Competencies-rev-2014.pdf>)

Midwives Model of Care® (<https://www.citizensformidwifery.org/mmoc>)

Learning Materials / Resources:

Please use textbooks less than 5 years old or most recent edition.

Great news: your textbook for this class is available for **free** online!

Microbiology from OpenStax

(<https://openstax.org/details/books/microbiology>), ISBN 1-947172-23-9

You have several options to obtain this book:

- **View online** [_\(<https://cnx.org/contents/e42bd376-624b-4c0f-972f-e0c57998e765>\)](https://cnx.org/contents/e42bd376-624b-4c0f-972f-e0c57998e765)
- **Download a PDF** [_\(<https://d3bxy9euw4e147.cloudfront.net/oscms-prodcms/media/documents/Microbiology-OP.pdf>\)](https://d3bxy9euw4e147.cloudfront.net/oscms-prodcms/media/documents/Microbiology-OP.pdf)
- **Download on iBooks** [_\(<https://itunes.apple.com/us/book/id1195961754>\)](https://itunes.apple.com/us/book/id1195961754)

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device.

<http://www.worldcat.org/title/microbiology/oclc/800860083?referer=br&ht=edition>

Microbiology Info Online Website. 2017. www.microbes.info <http://www.microbes.info>

American Society for Microbiology Website. 2017. www.asm.org <http://www.asm.org>

Help Evaluating Articles (visit the digital library)

Citation Guidance (visit the digital library)

Places to Find Research Articles (visit the digital library)

Evaluation Tools / Methods:

All assignments for this course are evaluated using the following criteria:

1. Responses to each didactic assessment are evaluated utilizing the NCM rubrics and degree level profile.
2. Answers should reflect a thorough review of the current literature regarding best current practices in midwifery care.
3. Non-plagiarized paraphrased answers from text which demonstrate appropriate comprehension of the learning objective. (Formative Assessment) *Students and Online Learning Coordinators work together until the student masters the information. (Summative Assessment)*
4. Group sharing within NCM is acceptable and encouraged. Students are allowed to use each other's answers by indicated "Group Share" and submission of the answer on all group identified assignments.
5. NCM's [Integrity Code](https://docs.google.com/document/d/14PvgiDU4MJEKRZZIUQRFhNBEDL_KFqZzATPkDvuQYzA/edit?usp=sharing) https://docs.google.com/document/d/14PvgiDU4MJEKRZZIUQRFhNBEDL_KFqZzATPkDvuQYzA/edit?usp=sharing is the basis for a "completed" score earned on all assignments which are allowed to be completed in community with the student's active preceptor(s).
6. Random evaluation of cited sources and page numbers for each written assignment.

Course credit: One Academic credit equals approximately 15 hours of formal time plus 30 hours of additional study or homework. Formal time is defined as the amount of time taken to answer the Learning Objectives to the level of 80% for midwifery courses and 70% for general education courses and to complete any learning activities to the preceptor's satisfaction, including any time spent face to face with the preceptor. Informal time includes any time spent actively reading relevant sources and textbook/s, researching Learning Objectives, and studying for examinations.