

MBIO 601 Molecular Microbiology
Fall 2009 (Tu, Th, 3-4 p.m.) Rm B107

Aug 20, Thur	Introduction - Schedule/ Exams/ Grading (also on Blackboard)	Miller
Aug 25, Tue Aug 27, Thur	Bacterial structure and growth Gram (+) cell wall structure and biosynthesis	Miller Streips
Sept 1, Tue Sept 3, Thur	Gram (-) cell envelope structure and biosynthesis Metabolism and transport I	Miller Streips
Sept 8, Tues Sept 10, Thur	Metabolism and transport II Energetics	Streips Streips
Sept 15, Tues Sept 17, Thur	Sporulation Class make-up (if necessary)	Streips
Sept 22, Tues Sept 24, Thur	Bacteriophage, restriction/modification Genetic exchange I	Streips Streips
Sept 29, Tues Oct 1, Thur	Genetic exchange II DNA replication	Streips Kalia
Oct 6, Tues Oct 8, Thur	DNA repair and recombination I DNA repair and recombination II	Kalia Kalia
Oct 13, Tues Oct 15, Thur	Fall Break Review sessions (if scheduled by lectures)	
Oct 20, Tues Oct 22, Thur	Exam I Transcription	Graham
Oct 27, Tues Oct 29, Thurs	Ribosome biogenesis and function Antibiotics	Graham Graham
Nov 3, Tues Nov 5, Thur	Protein secretion mechanisms Bacterial genomics	Graham Graham
Nov 10, Tues Nov 12, Thurs	Motility and chemotaxis Class make-up (if necessary)	Miller
Nov 17, Tues Nov 19, Thur	Two-component regulation Quorum sensing Demuth	Demuth
Nov 24, Tues Nov 26, Thur	Biofilms Thanksgiving vacation	Demuth
Dec 1, Tues Dec 3, Thur	Normal flora in health and disease Normal flora in health and disease	Abu Kwaik Abu Kwaik
Dec. 8, Tues	Concepts of pathogenesis	Abu Kwaik
Dec 15, Tues	Exam II	

(MBIO601) - MOLECULAR MICROBIOLOGY

Fall Semester, 2009

Course Director: Dr. Richard Miller (x5360, richard.miller@louisville.edu)

Other Lecturers: Dr. Uldis Streips (x5365, unstre01@louisville.edu)
Dr. Awdhesh Kalia (x6771, a0kali02@louisville.edu)
Dr. Jim Graham (x2781, j.graham@louisville.edu)
Dr. Don Demuth (x3807, drdemu01@louisville.edu)
Dr. Yousef Abu Kwaik (x4117, abukwaik@louisville.edu)

Course Content and Related Information

This course is an introduction to microbiology, focusing on the molecular make-up, function, diversity and pathogenicity of microorganisms, primarily bacteria. The course will begin with topics in the area of microbial structure, growth, metabolism, DNA replication, genetic exchange, transcription, protein synthesis/secretion, and regulatory mechanisms. Functional aspects will then be covered such as antibiotic action, biofilm formation, motility/chemotaxis, and sporulation. The last section of the course will be an introduction to bacterial pathogenesis, covering normal flora, general concepts and approaches to studying pathogenesis, and genomics.

In terms of overall depth, the material will be presented at an introductory level, assuming that the students have had at least a superficial background in microbiology from courses taken as an undergraduate student. However, we recognize that many students will have a much more extensive background in microbiology, and we will attempt to keep the class interesting and stimulating for these students as well. It should be emphasized that the intent of this course is not to teach the students everything there is to know about microbiology. Rather, we will provide the students with a good foundation on bacterial structure, function, and pathogenesis. This course is generally considered to be a prerequisite for our advanced bacteriology graduate courses, including Microbial Pathogenesis (MBIO 687), and Genetics of Pathogens (MBIO 680). Viruses are covered in elective courses (MBIO 671/672) that are taught by Dr. Hunt. MBIO 601 is not a prerequisite for these virology courses.

There will be no required textbook for this course. Rather, handouts will generally be provided for each lecture, either prior to or at the time of the lecture. Students who feel that their knowledge of basic microbiology is weak should refer to any of several introductory microbiology textbooks in the library (or bookstores) to review this information. Exam from the previous year will also be made available.

Schedule

This course will meet on Tuesdays and Thursdays from 3-4 p.m. in Room B107. The Kimsey Conference Room may be used on occasion. The specific lecture schedule has been included with this informational material.

Evaluations and Grading Policy

Grades for this course will be based on the evaluation of student performance in two examinations, according to the following percentages:

Exam I..... 52 % (13 lectures)
Exam II..... 48 % (12 lectures)

Each exam will cover only the lecture material for that section in the course. These exams will be primarily in essay or short answer format. However, each lecturer will be responsible for their own questions, and will comment on their type of exam questions during their lectures. As mentioned above, exams from the previous year will be made available to the students. Review sessions prior to each exam may be organized by individual lecturers.

Final Grades

The final letter grades for this course will be based on achieving the following percentages for the course:

A+ 94-100
A 90-93
A- 87-89
B+ 84-86
B 80-83
B- 77-79
C+ 74-76
C 70-73

The course director and other lecturers in this course reserve the right to alter these percentages if we feel justified by factors such as overall class performance or other extenuating circumstances. However, any changes will only be in the direction of making the grade assignments more lenient, never more stringent.

Attendance

The course work in this department is an essential part of your training as graduate students. **Thus, your attendance at all lectures is expected.** For those students involved in research, you are expected to plan your experiments around these lectures. Excused absences for other reasons are only with the permission of the course director.