

BIO 535/735 Pathogenic Microbiology Syllabus

1. BIO 535/735 Pathogenic Microbiology, Department of Biological Sciences, 3 credit hours
2. Catalog description: Prerequisite: BIO 320 or instructor approval. Studies in the field of advanced clinical microbiology with emphasis on morphology, cultivation, biochemistry, and serological identification of bacterial diseases; aspects of pathogenesis, epidemiology, and control measures of bacterial and mycotic diseases. 2 Lec/4 Lab.
3. Course Textbook: Medical Microbiology, Murray et al., 5th edition, Mosby Publishers, 2005.
4. Course objectives: The objectives of this course include: introducing the student to the concepts of infectious disease; studying the epidemiology of human disease; outlining the agents that cause disease (bacteria, fungi, viruses, and parasites); and applying these concepts to their future careers. This course is designed to be taken by students interested in entering the medical fields or in research into infectious diseases and epidemiology.
5. Course outline: see lecture readings and lab schedules given in this syllabus.
6. Course requirements: Students will be required to take two lecture exams, write four lab reports, maintain a lab research notebook, and perform two unknown identification exercises. Exams will consist of multiple choice, essay, fill-in-the-blank, and matching questions. Tests will not be given early unless a substantial reason is given, and makeup exams will only be administered if the student provides a substantial reason in writing for his or her absence. If such a reason is provided, an essay exam will be administered. There will not be a comprehensive final in this course; each exam will consist of material which has been covered since the previous exam. However, some of the questions on each exam will naturally follow from previously covered topics, so it is in your interest to understand and remember the material as you go along!
 - a. On laboratory notebooks: Write legibly and with sufficient detail. Record results from each lab performed. Glue or staple into lab book any handouts which are relevant to the labs performed. Answer all questions given by the instructor. Maintain a constant log of your work with your bacterial cultures, tests, and experiments performed. Do not substitute photocopies of materials from the instructor as your laboratory notebook - these handouts are additional materials, not the main part of your notebook!
 - b. On laboratory projects: These experiments will be begun during the scheduled laboratory sessions in this class, and will serve as the basis for a journal article written by each student. Further discussion of these projects will occur during the second week of class.
7. Additional requirements for graduate students: Graduate students will also be responsible for a research paper (200 pts) on a topic agreed upon by the instructor, as well as additional questions on each exam. Therefore, the total number of points for graduate students will be 900.

8. Evaluation method(s) and relative weight of each course requirement:
 - a. Lecture exams (2 @ 100 points each) 200 pts
 - b. Lab reports (4 @ 50 points each) 200 pts
 - c. Lab research notebook 50 pts
 - d. Pathogen unknown identification (2 @ 50 pts each) 100 pts
 - e. Journal article on laboratory project 150 pts
 - f. Total points possible 700 pts

The following grading scale will be used for students registered in this course:

Grading Scale for Undergraduate Students			Grading Scale for Graduate Students		
90-100%	630 points	A	93-100%	837 points	A
80-89.99%	560 points	B	84% - 92.9%	756 points	B
70% - 79.99%	490 points	C	75% - 83.9%	675 points	C
60% - 69.99%	420 points	D	66% - 74.9%	594 points	D
< 59.99%	419 points or below	F	<65.9%	593 points or below	F

9. Student progress: For determination of your midterm average:
 - a. Midterm exam grade 100 pts
 - b. Lab report 1 grade 50 pts
 - c. Lab report 2 grade 50 pts
 - d. Current average in class (divide sum of the above grades by 2)
10. Attendance policy: For unexcused absences from class as defined in the guidelines of the Department of Biological Sciences, your final course average will be reduced 5%. If you have an emergency situation, contact the instructor as soon as possible. Two unexcused absences will therefore lower your average by a letter grade!
11. Last day to drop:
12. Disabilities statement: "If there is any student in this class who is in need of academic accommodations and who is registered with the Office of Services for Students with Disabilities, please make an individual appointment with the course instructor to discuss accommodations. Upon individual request, this syllabus can be made available in alternative forms. If any student who is not registered with the Office of Services for Students with Disabilities has need of academic accommodations, please contact the Office directly either in person on the first floor of the Turley House or by telephone at 622-1500."
13. Academic integrity statement: *Eastern Kentucky University is a community of shared academic values, foremost of which is a strong commitment to intellectual honesty, honorable conduct, and respect for others. In order to meet these values, students at Eastern Kentucky University are expected to adhere to the highest standards of academic integrity. These standards are embodied in the Eastern Kentucky University Academic Integrity Policy, which all students shall pledge to uphold by signing the Eastern Kentucky University Honor Code. By honoring and enforcing this Academic Integrity Policy, the University community affirms that it will not tolerate academic dishonesty.* Web site: <http://www.academicintegrity.eku.edu/>

Biology 535/735 Lecture Reading Assignments

Please read the chapters assigned by the instructor before coming to class.

Week	Lecture topics	Lecture reading
1	Basic principles of medical microbiology	Chapters 1-9
2	Basic Concepts in the Immune Response	Chapters 11-15
3	Labor Day Holiday General principles of laboratory diagnosis	Chapters 16-18
4	Bacteriology	Chapters 19-23
5	Bacteriology	Chapters 24-30
6	Bacteriology	Chapters 31-40
7	Bacteriology	Chapters 41-46
8	Midterm exam	
9	Virology	Chapters 47-53
10	Virology	Chapters 54-60
11	Virology	Chapters 61-66
12	Mycology	Chapters 67-69
13	Mycology	Chapters 70-75
14	Parasitology	Chapters 76-79
15	Parasitology	Chapters 80-84
16	Final Exam	

Biology 535/735 Laboratory Calendar

Week		Experiments
1	W	Orientation to microbiology; the Gram stain; handling pathogenic cultures
2	M	Isolating pure cultures; use of primary media; cultivation of common pathogens (<i>Staphylococcus aureus</i> ; <i>Pseudomonas aeruginosa</i> ; <i>Escherichia coli</i> ; <i>Salmonella typhimurium</i> ; <i>Klebsiella pneumoniae</i>)
	W	Isolating pure cultures; use of primary media; cultivation of common pathogens (<i>Staphylococcus aureus</i> ; <i>Pseudomonas aeruginosa</i> ; <i>Escherichia coli</i> ; <i>Salmonella typhimurium</i> ; <i>Klebsiella pneumoniae</i>)
3	M	Different culture methods: microaerophiles, anaerobes, obligate aerobes, etc.
	W	Different culture methods: microaerophiles, anaerobes, obligate aerobes, etc.
4	M	Cultivation of fastidious pathogens: <i>Streptococcus pyogenes</i> , <i>Streptococcus pneumoniae</i> , <i>Haemophilus sp.</i> , <i>Neisseria spp.</i>
	W	Cultivation of fastidious pathogens: <i>Streptococcus pyogenes</i> , <i>Streptococcus pneumoniae</i> , <i>Haemophilus sp.</i> , <i>Neisseria spp.</i>
5	M	Metabolic and enzymatic activities of Gram positive cocci
	W	Metabolic and enzymatic activities of Gram negative rods
6	M	Preparation of media and reagents for special projects
	W	Preparation of media and reagents for special projects
7	M	<i>Staphylococci</i> ; <i>Haemophilus</i>
	W	<i>Staphylococci</i> ; <i>Haemophilus</i>
8	M	<i>Streptococci</i> , <i>Pneumococci</i> , and <i>Enterococci</i>
	W	<i>Corynebacterium</i> and <i>Listeria monocytogenes</i>
9	M	Anaerobes and <i>Neisseria</i>
	W	Identification techniques: enterotubes, identification kits, using secondary media
10	M	Unknown 1
	W	Unknown 1
11	M	Unknown 2
	W	Unknown 2
12		Work on lab projects
13		Work on lab projects
14		Work on lab projects