

Pathogenic Microbiology & Pathogenic Microbiology Lab
(MOLB 2220-40, 2220-90 & MOLB L002-40 and 90)
Eastern Wyoming College – Fall 2013
Course Syllabus

Instructor:

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Office: Off Campus

Office Hours: By Appointment (Please call or email if you have any questions or need some extra help with the course.)

Course Description and Rationale:

Pathogenic Microbiology is a lecture and laboratory course which covers bacteria, parasites, viruses, and fungi which cause human disease. Laboratory sessions emphasize the techniques used in the identification of disease-causing organisms. Students in biology, allied health, and pre-professional programs would benefit from this course.

Pre-requisite: BIOL1010 or BIOL1000, or approval of instructor.

Credit and contact hours:

Four credit hours, six contact hours (3 hours lecture, 3hours lab /week)

Course Objectives:

Upon completion of the course the student will be able to identify microbes which are pathogenic to humans, identify the diseases they cause, and know the manner in which the organisms would be identified in the laboratory. For a more specific list of course objectives please see the Lecture and Laboratory Schedule document.

MOLB 2220 -40 and MOLB 2220 -90

Lecture Schedule

Fall 2013

This Schedule was revised on 9/3 to correct the due dates for all lab assignments!

Week and Dates	Lecture Topic	Read Chapters/Page Numbers	Weekly Assignment/Quiz
1 8/27-9/2	Intro and History of Micro, Classification, Bacterial Anatomy and Morphology, Microscopy	Ch. 1 (All) Ch. 3 (56-68, 71-77) Ch. 4 (95-105, 112-119) Ch. 11 (316, 318-319, 320-339)	Week 1 Quiz/Survey Due 9/3 at 10pm
2 9/2-9/9	Staining and Microbial Nutrition Culture Techniques, Microbial Metabolism and Growth	Ch 4. (105-111) Ch. 5 (124-147) Ch. 6 (163-184)	NO CLASSES Mon. 9/2 Week 2 Quiz Due 9/9 at 10pm
3 9/9-9/16	Bacterial Genetics	Ch. 7 (194-198, 203, 224-230)	Week 3 Quiz Due 9/16 at 10pm
4 9/16-9/23	Exam 1 Controlling Microbial Growth, Infection and Infectious Disease, Epidemiology	Ch. 9 (259-279) Ch. 10 (284-311) Ch. 14 (405-434)	EXAM 1 Available 9/16 – 9/19 at 10pm Week 4 Quiz Due 9/23 at 10pm
5 9/23-9/30	Immunology, Vaccines	Ch. 15 (438-451, 454-458) Ch. 16 (464, 467-475, 478-489) Ch. 17 (495-502)	Week 5 Quiz Due 9/30 at 10pm
6 9/30-10/7	Exam 2 Pyogenic Cocci: <u>Staph.</u> , <u>Streptococci</u> , <u>Pneumococci</u> , <u>Enterococci</u>	Ch. 19 (539-549)	Exam 2 Available 9/30-10/3 at 10pm Week 6 Quiz Due 10/7 at 10pm
7 10/7-10/14	Pyogenic Cocci: <u>Neisseria</u> Gram + Bacilli: <u>Listeria</u> , <u>Cornyebacteria</u> , <u>Propionobacterium</u> Anaerobes: <u>Clostridia</u> , <u>Bacillus subtilis</u>	Ch. 19 (550-558, 561-562, 566—568) Ch. 20 (574-577)	Week 7 Quiz Due 10/14 at 10pm
8 10/14-10/21	<u>Bacillus Anthracis</u> Fall Break No Classes Thurs. and Fri.	Ch. 19 (550-551) Ch. 26 (783-787)	Week 8 Quiz Due 10/21 at 10pm
9 10/21-10/28	Exam 3 Gram Negative Enteric Bacilli; <u>Salmonella & Shigella</u>	Ch. 20 (578-590, 592-601)	Exam 3 Available 10/21- 10/24 at 10pm

	Enterics 2: <u>Vibrio</u> , <u>Campylobacter</u> , <u>Helicobacter</u> , & <u>Pseudomonas</u>	Ch. 21 (622-627)	Week 9 Quiz Due 10/28 at 10pm
10 10/28-11/4	Small Gram Negative Rods Mycobacteria	Ch. 20 (590-591, 592, 597-599, 600) Ch. 19 (559-560, 562-566)	Week 10 Quiz Due 11/4 at 10pm
11 11/4-11/11	Miscellaneous, Spirochetes, <u>Rickettsiae</u> & <u>Chlamydiae</u>	Ch. 21 (607-622)	Week 11 Quiz Due 11/11 at 10pm
12 11/11-11/18	Exam 4 Virology and Viral Diseases	Ch. 24 (689-710)	Exam 4 Available 11/11-11/14 at 10pm No Quiz this week!
13 11/18-11/25	More Viral Diseases	Ch. 25 (715-751)	Week 13 Quiz Due 11/25 at 10pm
14 11/25-12/2	Exam 5 Mycoses: Cutaneous and Systemic Thanksgiving No Classes Weds, Thurs, Fri.	Ch. 22 (633-650)	Exam 5 Available 11/22-11/26 at 10pm No Quiz this week!
15 12/2-12/9	Parasitology Protozoa, Metazoa (Trematodes, Cestodes & Nematodes)	Ch. 23 (658-683)	Week 15 Quiz Due 12/9 at 10pm
FINALS 12/10-12/13	Final Exam (50 points on Mycoses and Parasitology, 100 points Comprehensive)		Final Exam Available 12/10-12/13 at NOON

Laboratory Schedule

Week and Dates	Topic	Lab Assignment Due:
1 8/27-9/2	Download VUMIE 2012 and Micro Digital Media Lab Manual	
2 9/2-9/9	Lab 1: Touring the Virtual Laboratory (pg 1-6) Aseptic Technique 1 and 2 (pg 7-18)	
3 9/9-9/16	Lab 2: Bacterial Cell Anatomy, Morphology and Arrangements (pg 19-24)	Lab 1 Due 9/10 at 10pm
4 9/16-9/23	Lab 3: Growth Media and Patterns of Growth (pg 25-28)	Lab 2 Due 9/17 at 10pm

5 9/23-9/30	Lab 4: Controlling Microbial Growth (pg 29-30) Antimicrobials and Chemotherapeutic Agents (pg 31-32)	Lab 3 Due 9/24 at 10pm
6 9/30-10/7	Lab 5: Identifying Gram Positive Cocci (p. 59-62) Hemolysis (p. 63-64) Information on paper	Lab 4 Due 10/1 at 10pm
7 10/7-10/14	Lab 6 Catalase (p. 65-66) Bile Esculine Test (p. 67-68) Mannitol Salt Agar Test (p. 69-70)	Lab 5 Due 10/8 at 10pm
8 10/14-10/21	Fall Break No Classes Thurs. and Fri.	Lab 6 Due 10/15 at 10pm
9 10/21-10/28	Lab 7: Gram Positive Cocci Unknowns Identifying Gram Negative Rods (p. 33-36) Paper topic due	NO LAB Due this week! Paper topic due 10/25 at 10pm
10 10/28-11/4	Lab 8: Oxidase and OF Glucose (p. 37-40) Triple Sugar Iron Agar (p. 41-44) IMViC Series (p. 45-50)	Lab 7 Due 10/29 at 10pm
11 11/4-11/11	Lab 9: Carbohydrate Fermentation (p. 51-54) Amino Acid Metabolism (p. 55-58) Gram Negative Rod Unknown	Lab 8 Due 11/5 at 10pm
12 11/11-11/18	Lab 10: Rapid Id Systems for Bacterial Identification (p. 71-74) Save the Patient! (p. 75-76)	Lab 9 Due 11/12 at 10pm
13 11/18-11/25	Lab 11: Infectious Disease and Epidemiology (p. 77-78) Pathogenicity and Virulence Factors(p.79-80)	Lab 10 Due 11/19 at 10pm
14 11/25-12/2	Thanksgiving No Classes Weds, Thurs, Fri. No Lab!	Lab 11 Due 11/26 at 10pm
15 12/2-12/9	Lab 12: Select 2 of the Infections of the Human Body by System (pg 85-94)	NO LAB DUE! Paper Due 12/7 at 10pm
FINALS 12/10-12/13		Lab 12 due 12/10 at 10pm

Instructional Resources:

Required Text: Bauman, Robert W. Microbiology with Diseases by Taxonomy 4th edition. Pearson Benjamin Cummings, 2014. ISBN: 0-321-81556-4

Required Lab: VUMIE 2012: The Virtual Unknown for Microbiology Internet Edition Software, Intuitive Systems, 2012. ISBN: 0-9671550-3-6 (Available for purchase and download at the bookstore or online at <http://virtualunknown.com/>)

Required Lab Manual: Micro Digital Media Lab Manual. Made to accompany VUMIE 2012 software. Download for FREE at <http://virtualunknown.com/student-resources/vumie.html>

Lancernet: HYPERLINK "https://prod.campuscruiser.com/q?pg=home_welcomeRedirected" https://prod.campuscruiser.com/q?pg=home_welcomeRedirected

Course Content:

For an outline of the major topics covered in this course, and the amount of time devoted to each please see the Lecture and Laboratory Schedule document.

Course Requirements:

Weekly Lecture Quizzes: Each week you will have an assignment that will help you prepare for the unit Exams in this course. Often these assignments will be a quiz that is administered in Lancernet. You will not need a proctor for these quizzes. See the Lecture and Lab Schedule for due dates. Most of these quizzes will be due on Monday evenings at 10pm. There will be 13 weekly quiz assignments; each is worth **10 points**. **You will be able to drop the lowest quiz score for the semester.**

Unit Exams: Each of the first five Units in this course will culminate in an exam. These exams will be taken via Lancernet and **MUST be taken in the presence of an approved proctor.** You will NOT be permitted to use your text book, notes, or other course materials on these exams. Exams will consist of about 70% multiple choice/matching questions and about 30% essay questions. Pay close attention to the objectives provided in course materials and the content in the weekly assignments to help you prepare for these exams. Exams will typically be available from Monday morning until Thursday evening of the week they are administered. Please see the section near the end of the syllabus on "Selecting an Approved Proctor" for more details on proctor selection. Each exam is worth **100 points**.

Comprehensive Final Exam: This exam will consist of material from the first 5 units covered in this course, as well as material from Unit 6. **The cumulative portion of the exam will be worth 100 points and the Unit 6 portion of the exam will be worth 50 points, for a total of 150 points.** This exam will also be taken in the presence of a proctor and without the help of your course materials.

Laboratory Assignments: You will have weekly lab assignments that will be submitted electronically for a grade. To complete the lab work you will need the VUMIE 2012 software and the Free Micro Digital Media Lab Manual that you download from www.virtualunknown.com. The scores for weekly lab assignments will be combined with your exam scores, weekly lecture assignment scores, and the score you receive on the research paper to determine your final grade in the class. The labs will be worth a total of **200 points** which is about 20% of your final grade. Please see the weekly labs to find out how many points each assignment is worth.

Infectious Disease Research Paper: This will be a scientific research paper on a significant infectious disease. You will need to access library materials such as scientific journals for this paper. You can do this by accessing the EWC library via the "Library" tab available in Lancernet. You may also choose to access these materials through your local library. This paper will be worth **80 points**. Please see the course schedule for important due dates for the paper.

In summary here is how you will earn your grade in the course:

Weekly Assignments/Quizzes	13 @ 10 points each (drop lowest)	120 points total
Unit Exams	5 @ 100 points each	500 points total
Comprehensive Final Exam	1 @ 150 points	150 points total
Laboratory Assignments	13 Assignments (points will vary)	200 points total
Research Paper	1 @ 80 points	80 points total
	Semester Points Total	1050 points

Evaluation Criteria:

Your final grade in this course will be determined by the number of total points that you earn on weekly assignments, unit exams, comprehensive exam, laboratory assignments and the research paper. The following grading scale and point scale will be used:

Letter Grade	% of points earned	# of points earned
A	90-100%	945-1050
B	80-89.5%	840-944
C	70-79.5%	735-839
D	60-69.5%	630-734
F	Below 60%	Less than 630

Classroom Expectations:

- **Commitment:** Please remember that this is a 4 credit hour course which means that you would be spending 3 hours per week in lecture and 3 hours per week in the lab if you were taking the course on campus. (This does NOT include the time you might spend studying and completing assignments outside of class.) Do yourself a favor and please find at least 6 hours/week to spend on this course: this will help you succeed in this online class.
- **Course Schedule/Due dates:** Please print this syllabus and the Lecture and Laboratory Schedule and put them in a place where they will be easy to refer to. This should help you stay on track with all of your coursework. I may need to modify reading assignments as we go, but I will always include reading assignments in the weekly notes and materials.
- **Due Dates/Late Work on Labs, Weekly Assignments, and the Paper:** Life happens and sometimes it is difficult to meet the deadlines I have set forth in this class! If you are not able to complete an assignment on time, please email or call me ASAP! I may permit you to turn in your assignment late; BUT I will deduct 10% of the points from the grade on that assignment for each day that it is late.
- **Scheduled Exams:** I have tried to schedule exams so that you will have ample time to make arrangements with your proctor and complete the exam on time. However, if you have an extenuating circumstance and cannot take the exam during the schedule time period you must call or email me right away. Under extenuating circumstances, we will make arrangements for you to take a "Make-up exam" with your proctor.

- **Exams:** You will be taking each Unit Exam and the Comprehensive Final in the presence of an approved Proctor. You will NOT be permitted to use your course materials, text book, or other study aids while taking the exam. This will be just as if you were sitting in my classroom on campus taking a closed-book, closed-notes exam.
- **Selecting an Approved Proctor:** In your Week 1 Assignment, you will be required to turn in the contact information for the Proctor that you have selected for this course. The Proctor should be one of the following: EWC Outreach Coordinator, Full-time EWC faculty member, Full-time Faculty Member or Administrator in your Local School District or at a Local Community College/University. This person should not be a member of your immediate or extended family. (If you cannot find someone who meets these criteria, please call or email me and we will explore other options in your local area). I will need a phone number, fax number, and email address for the person that you have selected. Exams are going to be available from 7am on Monday until 10pm on Thursday in most cases, so make sure you can make arrangements with your proctor to take exams during that window of time. Also, I will notify you and let you know that your proctor has been approved by the end of week 2 of our course.
- **Dishonesty:** Cheating and plagiarism will NOT be tolerated in this course. This includes copying the work of another student or copying work from a resource such as a book, magazine or website without giving proper credit. Also, remember that you are NOT permitted to use your text or other course materials on Unit Exams or the Comprehensive Final. All persons involved in cheating/plagiarism will receive a “0” for the assignment or exam in question (and may result in an “F” in the course for everyone involved based on the seriousness of the incident).

General Education Requirements

Every EWC graduate is expected to demonstrate competency in each of the following five areas:

- **Communication Skills:** Graduates will be able to understand and communicate ideas and information in written and spoken English that reveals a mastery of terminology appropriate to their disciplines.
- **Analytical and Quantitative Reasoning:** Graduates will be able to solve problems through critical thinking involving analytical and quantitative reasoning at a level appropriate to their disciplines.
- **Technology Skills:** Graduates will be able to demonstrate competence using technology appropriate to their disciplines.
- **Social Awareness:** Graduates will be able to demonstrate an awareness of the relationship between the individual and the world.
- **Information Literacy:** Graduates will be able to locate, evaluate, and use information effectively.

Accommodations

EWC is committed to providing reasonable accommodations for qualified individuals with disabilities. If you have a disability and desire a reasonable accommodation for such disability, you should contact Ms. Debbie Ochsner, Director of Counseling and Testing (532-8238) as soon as possible so arrangements may be made.

Disclaimer

As the instructor, I reserve the right, acting within the policies and procedures of EWC, to make changes to the course activities and course schedule. Students will be notified of any changes that are made.