

Syllabus SUMMER 2010

Course Number and Name: MB 3330 Pathogenic Microbiology

Course Hours: 3 lecture hours

Course Credits: 3

Contact Information:

Course Professor: Martha J. Friesen, PhD Microbiology and Immunology

Office: 315 Iwama Building

Office Hours: open (no appointment needed)

Phone: 281-998-6048

E-mail: mfriesen@txchiro.edu

Required Readings/Texts: Lecture Note Pack, available through Scholar 360

Suggested readings: Medical Microbiology, by Jawetz, Melnick, and Adelberg
24th edition, Lange Medical Books/McGraw Hill, 2007

Scholar 360 Address: <http://scholar360.com/txchiro>

NOTE: this trimester, all notes, assignments and announcements will be given on Scholar 360. It is the student's responsibility to download and photocopy the material they want.

Course Description:

This is a lecture formatted Basic Science course designed to introduce the student to the major principles of pathogenicity of bacteria and viruses. It builds upon information provided in General Microbiology, Immunology, and Biochemistry. This lecture course deals with the pathology of infectious diseases, stressing the important bacterial and viral infections of man. It includes a discussion of the host parasite relationship, major virulence factors, modes of transmission, mechanisms of prevention, and the laboratory identification of pathogenic bacteria and viruses. **PREREQUISITES:** General Microbiology, Immunology.

CCE / TCC Competencies:

1. CCE "Diagnostic Studies" competency
2. CCE "Diagnosis" competency
3. CCE "Physical Examination" competency
4. CCE "History Taking" competency

Learning Outcomes: the student will be able to.....

1. understand the general concepts of the Host Parasite Relationship, including microbial virulence factors and basic host defenses.
2. list the major groups of pathogenic bacteria and viruses.
3. explain in detail how various pathogenic microbes cause disease.
4. solve case histories involving pathogenic bacteria

Learning Objectives: the student should be able to.....

1. define key terms related to pathogenic microbiology
2. describe the Host Parasite relationship.
3. list and identify the major microbial virulence factors.
4. list the major host defense mechanisms.
5. describe the major bacterial pathogens affecting man, including (but not limited to) Gram stain reaction, size and shape of cell, disease mechanism, virulence factors, clinical characteristics, how the disease is spread, vaccine (if available).
6. describe the major viral pathogens affecting man, including (but not limited to) type of genome, size and shape of capsid, type of disease, how the disease is spread, how the virus replicates, and how it makes it's proteins.
7. be able to identify major pathogens from information gathered in "case histories" provided in class.

Teaching Philosophy:

My approach to teaching this basic course is to assume the student has not been introduced to many of the concepts covered specifically in pathogenic microbiology. Thus the course is taught from ground zero, on an introductory level, in an organized step by step method. It is assumed, however, that the student has recall of the major topics covered in general microbiology, and immunology, and in some cases, biochemistry.

To best benefit from this course, the student should come to class on time, having looked over the material to be discussed. Note packs are available, and it is assumed the student has one. It is expected that the student will ask questions on topics not completely understood.

My teaching methods are simple. I use the overhead projector to show the outlines presented in the note packs. I fill in the blanks during lecture, and try to repeat things from previous lectures. The student should notice the built in review aspect of the course, and use that as “free” study time.

As course instructor, I come to class prepared to address certain topics. I expect the student to come to class and pay attention. As there is a lot of review in each lecture, those students who have previewed the material will benefit the most.

Student Responsibilities:

Participation: I expect the student to ask questions when they do not understand. I do “throw out” questions during class, but do not require students to stand up and answer. Their part in the participation is to come to class and pay attention.

Daily Responsibilities: I expect the student to act as a professional: come to class ready to learn, pay attention, review the material, make the most of the time in class, and to ask questions. Working on other class material or outside material is considered disrespectful. The student will be asked to put that other material aside during class.

Quizzes/Exams: there are no formal quizzes. There will be three lecture exams and one comprehensive final exam.

Course Content and Outline:

Major Topics: the following represents the tentative lecture sequence. The note pack sequence follows the lecture sequence.

DISCLAIMER: below is a tentative lecture schedule. I typically do not follow a regimented strict schedule. I prefer a more flexible approach to the topics at hand. Some topics – depending on the class – take longer to cover. Others take a shorter amount of time. Pathogenic Microbiology as a whole is a dynamic subject, with new and exciting items reported on a regular basis. At times those topics merit discussion, which changes the weekly designation. While the weekly designation of topics may change, the sequence of topics does not. The amount of material on each exam will not change. Exam dates are tentative, and will be finalized only after the material on that exam has been covered. Also taken into consideration will be scheduled exams in other courses so as not to overload the student.

WEEK 1: Orientation
 Handing out of syllabus
 Discussion of syllabus

- WEEK 2: Basic concepts / Review of General Microbiology
The Host Parasite Relationship
Virulence factors
Host defenses
- WEEK 3: The Pyogenic Cocci
- Genus Staphylococcus
 - Genus Streptococcus
 - Genus Enterococcus
 - Genus Neisseria
- WEEK 4: The Pyogenic Cocci continued
The Gram Positive Bacilli
- Genus Bacillus
 - Genus Clostridium
 - Genus Listeria
 - Genus Corynebacterium
- WEEK 5: The Gram Positive Bacilli continued
EXAM 1 (Basic concepts through The Gram Positive Bacilli)
- WEEK 6: Family Treponemaceae
- Genus Treponema
 - Genus Borrelia
 - Genus Leptospira
- Genus Mycobacterium
- Family Enterobacteriaceae
- Genus Klebsiella
 - Genus Proteus
 - Genus Enterobacter
 - Genus Serratia
 - Genus Escherichia
 - Genus Salmonella
 - Genus Shigella
- WEEK 7: Family Enterobacteriaceae continued
- Genus Yersinia

Family Vibrionaceae

Genus VibrioGenus CampylobacterGenus Helicobacter

WEEK 8: Gram negative Oxidase Positive Bacilli

Genus HemophilusGenus BordetellaGenus LegionellaGenus PseudomonasGenus AeromonasGenus BrucellaGenus PasteurellaGenus Francisella

WEEK 9: EXAM 2 (Family Treponemaceae through Gram negative Oxidase positive Bacilli)

WEEK 10: Non Spore Forming Anaerobes (Genus Bacteroides)Mollicutes (Genus Mycoplasma)Genus Chlamydia

Rickettsial Agents

General Review of Viruses

Definition

Structure

How to classify

Replication cycles

Baltimore classification scheme

WEEK 11: Specific Viral Pathogens: the DNA viruses

Parvoviruses

Herpesviruses

Adenoviruses

Papovaviruses

Hepadnaviruses

WEEK 12: Specific Viral Pathogens continued : the RNA viruses

Orthomyxoviruses
Paramyxoviruses
Rhabdoviruses
Coronaviruses
Caliciviruses
Filoviruses
Picornaviruses
Togaviruses
Bunyaviruses
Arenaviruses
Oncornaviruses

WEEK 13: EXAM 3 (Non spore forming Anaerobes through Specific Viral Pathogens)

WEEK 14 or 15: Final exam (comprehensive, no new material)

Grade Method and Scale:

I follow the standard TCC grading scale.

A = 90-100

B = 80-89

C = 70-79

F = below 70

Explanation of Evaluation:

Each lecture exam is worth 25 %, for a total of 75 % of the course.
The Final Exam is comprehensive, and worth 25 % of the course.

Statement on the Assessment Process and Measurements:

Exam questions on all exams will be multiple choice (scantron graded, student supplies the ParScore scantron). Exam questions may involve the interpretation of case histories, with the student identifying the organism from the information given. It may also follow a “what would you do next” scenario, where the student tells what he/she would do next in order to identify an organism. Each lecture exam consists of 50 questions; the final exam consists of 100 questions. Exam format may be altered as necessary, with adequate time given for student notification.

Grades will be made available as soon as possible, and will be posted on Scholar 360. Class Ethics officers may access the exam key; students may review their scantron.

While there is no time limit as to when the keys are available during the trimester, keys will not be available once final exams begin.

Actual exam papers are not handed back, and are destroyed after the exam. Scantrons and answer sheets are kept on file.

Extra Credit: there is no extra credit.

Policy and Guideline Information:

Attendance: NOTICE!!! I take roll, and record your attendance for each class meeting.

Regular and punctual attendance at all scheduled classes and laboratories is expected. A student is subject to academic penalty if absences exceed ten percent. Absences exceeding twenty percent subject a student to dismissal from a course. Three (3) incidences of tardiness may constitute an absence. If justifiable cause can be shown for the absenteeism, the student may be permitted to make up missed assignments and maintain enrollment in the class. For this class, 10 % of the course is 5 absences. The 6th will get you dropped a letter grade. 20 % of this class is 10 absences. The 11th will get you withdrawn failing (WF) from the course.

Missed Examinations:

Students must notify faculty before missing any examination. If an examination is missed for good and sufficient reason and the student has notified the faculty in advance, a make-up examination may be given subject to a fee of \$40.00. The fee for the make-up examination is a minimum of \$75.00 if a standardized patient is required for the exam. Additional standardized patient hours may increase this \$75.00 minimum fee. All intra-term examinations must be made up prior to final examinations. Missed final exams must be completed within the first week of the next trimester. A student may be allowed a maximum of two missed examination dates for good and sufficient reason per trimester. These two missed examination dates are for all enrolled courses in a trimester, not for each individual course. Any request for additional make-up examinations will require documentation substantiating the absence and must be approved by the Dean of Academic Affairs.

Cellular Phones and Pagers: NOTICE!!! I take cell phones.

Electronic communication devices are to be turned off or placed in silent mode when entering the classroom. This will benefit the learning environment for you, your fellow classmates, and instructors. In this class, any unauthorized beeping or buzzing will result in the loss of the cell phone or beeper/pager for the rest of the day. Doodling on any electronic device during class (checking cell phone messages, text messaging, etc) will also result in the loss of the device.

Re-entry into the classroom:

Students will be asked not to re-enter the classroom should they leave for any reason during the lecture. Constant wandering in and out is distracting to the professor and to the class. If you must leave the classroom, do not return until class is over.

Exam Protocol: specific for this class

Students will be expected to do their own work during exams. Cheating will not be tolerated, and will result in the student being taken before Academic Affairs. Students will be asked to sit in every other seat in the examination room. All non essential materials (pocket books, back packs, coats, etc) will be placed in the front of the class room. Hats may be worn, but turned. No cell phone or pager will be allowed out on the desks.

Note: Other important policies can be obtained from the current edition of the Student Handbook.