

MICR 4200 Emerging and Re-Emerging Infectious Diseases Fall 2018

Class # 96272, MW 1:40 – 2:55 pm, BIOS 244

Instructor	Office Location	Office Hour
Dr. Edith Porter; eporter@calstatela.edu ; Tel: (323) 343 6353	ASCL 355	Academic OH: M 8:15 – 9:15 am Class OH: MW 11:30 am – 12:00 pm

Course description

This 3 unit course covers the microbiology and pathogenesis of infectious diseases in today's news, forces driving their appearance, and tools for their recognition, identification and control. There is an emphasis on primary literature and group discussions.

Prerequisites:

BIOL 1200 or MICR 2010 and MICR 2020 or MICR 3100 / BIOL 3100 (or quarter course equivalents) or instructor consent.

Student learning outcomes:

- To be able to discuss the microbiology and pathogenesis of emerging and re-emerging infectious diseases
- To be familiar with tools for rapid identification of infectious disease outbreaks and determination of the causative agents, including those which have previously been unidentified
- To be able to discuss the forces driving the emergence and re-emergence of infectious diseases
- To become familiar with state, federal and international institutions involved in all levels of surveillance, prevention, and control of emerging and re-emerging infectious diseases
- To improve skills in reading and critically evaluating the primary literature and current news
- To improve oral presentation skills
- To strengthen ability to work in teams
- To increase awareness of career opportunities in infectious diseases

Textbooks:

Any current microbiology textbook which covers medically relevant topics (examples: Tortora, Slonczewski, Mahon).

Instructional web site:

All course related materials including relevant web site links, PowerPoint lectures, research articles, and case studies will be available in **Canvas**. All students are required to have a current CalState L.A. NIS account with a campus email address to be able to access **Canvas**. Students should visit **Canvas** frequently for class updates.

Relevant web sites:

Calstate LA Library: <http://web.calstatela.edu/library/#articles>

Pubmed: <http://www.ncbi.nlm.nih.gov/pubmed/>

Los Angeles Public Health Department: <http://www.lapublichealth.org/>

California State Department of Health: <https://www.cdph.ca.gov/>

United States Department of Health and Human Services: <http://www.hhs.gov/>

Center of Disease Control (CDC): <http://www.cdc.gov/>

World Health Organization (WHO): <http://www.who.int/en/>

American Society for Microbiology: <https://www.asm.org/>

Southern California Branch of the American Society for Microbiology (SCASM): <https://www.scasm.org/>

Performance evaluation:

Reflective essays (20 pts, 2 x 10 pts): At the very beginning and at the very end of the course students will reflect on their decision to take this course. A template will be posted on **Canvas** for the essays, which will be submitted via **Canvas**.

Weekly Quizzes (150 pts, 15 x 10 pts): To assess student learning there will be weekly multiple choice quizzes administered via **Canvas**. They will open Thursday evenings by 11:00 pm and close Sunday evenings at 11:55 pm (23:55). These open-book quizzes will be set for two attempts with the higher score counting.

Midterm (100 pts): A cumulative midterm will be given in week 8 and will consist of various types of questions including open questions with short answers, fill-ins, and a concept map. Questions will address lecture material, hot topics, primary research papers, and case studies (see below).

Primary research paper presentation (40 pts) and participation in discussion (20 pts): **Primary research articles** published **no earlier than 2015** will be presented by student teams in form of a 10 min PowerPoint synopsis followed by a 5 minute discussion period. Presentation dates will be selected at the second class meeting. Students will be graded based on their presentation and how they handle the discussion. The date of the presentation will be selected during the second class meeting. The paper must relate to the lecture topic of that day. The template for the synopsis will be available on **Canvas**. **The presenting team must submit an electronic copy of the selected article five days before their presentation** for posting. All students are required to read the article before the presentation. Students who not presenting are expected to ask questions and participate in the discussions following each research paper presentation.

Hot topics in infectious diseases (20 pts): Student teams will present a current (published during the duration of the course) report from the **general news** in form of a 5 min PowerPoint summary (2 slides maximum) that includes their opinion and critique of the news report. Presentation dates will be selected at the second class meeting. The topic can be anything related to infectious diseases and does not have to match the lecture topic. The template for the synopsis will be available on **Canvas**.

Careers in infectious diseases (20 pts): Students will form teams to explore career options in areas related to infectious disease (public health, biosecurity, research & development, biotechnology, public policy, health care, environmental science, food safety, education, and space exploration). Teams will be assigned to a specific area and will prepare a summary of five different job titles within the assigned area, along with required education and qualifications for the job, duties, and salary ranges. A template will be posted in **Canvas**. The aggregated summaries will be made available to all students to assist them in deciding on a career path. Students are expected to use their gained knowledge in the discussion session with our invited speakers.

Case studies (30 pts, 3 x 10 pts): Three case reports from current outbreaks will be released in class or posted online. Students will work in groups to solve the cases. The response assignments will be uploaded via turnitin and will include diagnosis, microbiology of the organism, molecular pathogenesis, therapy, and infection control measures. A template with specific guidelines will be posted on **Canvas**.

Comprehensive final examination (150 pts): The final exam will be cumulative and will include everything discussed and presented in the classroom.

Grading: Based on % of maximal points achieved

Total points: 550

20	Reflective essays (2 x 10 pts)
150	Weekly Quizzes (15 x 10 pts)
100	Midterm
20	Hot Topics (team assignment)
40	Research paper presentation (team assignment)
20	Participation in research paper discussions
20	Career options in infectious diseases (team assignment)
30	Case studies (team assignment, 3 x 10 pts)
150	Comprehensive final examination

	B+: $\geq 85\%$ (≥ 468 pts)	C+: $\geq 74\%$ (≥ 407 pts)	D+: $\geq 64\%$ (≥ 352 pts)
A : $\geq 93\%$ (≥ 512 pts)	B : $\geq 80\%$ (≥ 440 pts)	C : $\geq 70\%$ (≥ 385 pts)	D : $\geq 60\%$ (≥ 330 pts)
A- : $\geq 89\%$ (≥ 490 pts)	B- : $\geq 77\%$ (≥ 424 pts)	C- : $\geq 67\%$ (≥ 469 pts)	F: $< 60\%$ (< 330 pts)

Study suggestions:

- Always read the PowerPoints and supporting text from your textbook before attending lecture and summarize what you have learned after lecture.
- Take very good notes - anything what was explained or commented on verbally may be tested on.
- Form study groups and force yourself to explain the material you have learned.
- Create various tables that organize the teaching material from different viewpoints.
- Learn to recognize when you need help, and get help in a timely manner (visit office hours, email questions to the instructors, take advantage of the tutor center).
- Study, study, study, study, study.....

General Policies:

Lecture attendance is mandatory. A "0" will be assigned for any missed quizzes, exams, etc. unless the absence is satisfactorily justified (e.g. doctor's note). Students are responsible for acquiring any missed material. No make-up assignments. **Assignments turned in late will not be accepted!** The **Drop/Incomplete** and **Academic/Honesty policies** explained in the University General Catalogue will be strictly followed. Students are expected to read and abide by the University's Academic Honesty Policy (<http://www.calstatela.edu/academicsenate/handbook/ch5a>). Students who violate this policy will be subject to disciplinary action, and may receive a failing grade in the course for a single violation. **You are responsible for the prerequisites** for this course and are encouraged to discuss any questions regarding the policies and prerequisites with the instructors. Reasonable accommodation will be provided to any student who is registered with the Office for **Students with Disabilities** and requests needed accommodation.

Students are strongly encouraged to work with the instructors throughout the course.

Tentative Schedule for MICR 4200 F 2018

MW1:40 pm – 2:55 pm, BIOS 244

Week	Date	Topic	Team Assignment	
			Hot topic	Research paper
1	8/20	<u>Identifying the challenge</u>		
	8/22	Research paper, hot topics, case study assignments		
2	8/27	<u>Epidemiology</u>		
	9/29	<u>Health care associated infections</u> MRSA, VRSA, VRE		
3	9/3	<i>No class- Labor day</i>		
	9/5	<i>Klebsiella pneumoniae</i> , ESBL, CRE		
4	9/10	<i>Acinetobacter baumannii</i>		
	9/12	<i>Clostridium difficile</i>		
5		<u>Emerging and re-emerging bacterial infectious diseases</u>		
	9/17 9/19	<i>Mycobacterium tuberculosis</i> <i>Bordetella pertussis</i> , <i>Legionella pneumophila</i>		
6	9/24	<i>Neisseria meningitidis</i>		
	9/26	Foodborn illnesses, <i>Salmonella</i> , <i>Shigella</i>		
7	10/1	<i>Vibrio</i> , <i>Clostridium botulinum</i>		
	10/3	<i>Chlamydia trachomatis</i> , Lyme disease		
8	10/8	Midterm		
	10/10	<u>Emerging and re-emerging viral infectious diseases</u> Video		
9	10/15	Threat of emerging RNA viruses		
	10/17	Zika virus – guest lecture <i>Deisy A. Contreras, Ph.D., Clinical Microbiology Fellow, UCLA Clinical Microbiology Laboratory - Brentwood Annex HIV</i>		
10	10/22	Influenza virus (human)		
	10/24	Influenza virus (avian, swine)		
11	10/29	Hanta virus		
	10/31	Measles virus		
12	11/5	West Nile virus		
	11/7	Dengue fever virus		
13	11/12	<i>No class- Veteran's Day</i>		
	11/14	<u>Emerging and re-emerging fungal and parasitic infectious diseases</u> <i>Cryptococcus gattii</i> , <i>Coccidioides</i> <i>Trypanosoma cruzi</i>		
14	11/19	<i>No Class – Study week and Thanksgiving</i>		
	11/21			
15	11/26	<i>Plasmodium</i> , <i>Babesia</i> , <i>Ehrlichia</i> , <i>Anaplasma</i>		

	11/28	
16	12/03	<u>Partnerships in the control of infectious diseases</u> Nicole M. Green, Ph.D., D(ABMM), Director, Public Health Laboratories, Los Angeles County Department of Public Health
	12/05	Annie Cheung Lam, M.S., Consumer Safety Officer, Food and Drug Administration
Finals	12/12	Final Examination 12:00 – 2:00 pm