MICR 450 Innate Immunity (4) W2008 Syllabus

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Office Hours in BS 302
Mon:10:00 – 11:00 am
Tue:3:00 – 4:00pm

Week	Date	Day	Lecture (BS 244) Janeway's Immunobiology TR 9:50 – 10:40 am	Laboratory: BS 136, T 10:50a–1:20p Recitation: BS 244, R 10:40a–11:30a
1	1.03.08	R	Course outline and requirements Basic concepts in immunology (Chapter 1.1 -1.17)	Laboratory and safety rules
2	1.08.08	T	General Defense mechanisms (Chapter 2.1, 2.2)	Check in Blood smear Isolation of phagocytes
	1.10.08	R	Epithelial cells (Chapter 2.3; primary research)	Recitation
3	1.15.08	T	Phagocytes (Chapter 2.4)	Phagocytosis and killing assay
	1.17.08	R	Phagocytes, cells with phagocytic activity (Chapter 2.4, 2.5; 9.21, 9.22; 9.24, 9.25)	Recitation
4	1.22.08	T	Reactive oxygen metabolites (Chapter 2.4)	Oxidative burst **Quiz 1 (25 points)**
	1.24.08	R	Antimicrobial peptides (Chapter 2.4; primary research)	Recitation
5	1.29.08	T	Antimicrobial peptides (Chapter 2.4, primary research)	Antimicrobial peptide extraction, lysoplate and radial agar diffusion
	1.31.08	R	Pattern recognition receptors (Chapter 2.6 – 2.10)	Recitation
6	2.05.08	T	**Midterm (100 pts)**	Charged based electrophoresis of antimicrobial peptide and gel overlay assay
	2.07.08	R	Complement (Chapter 2.11 – 2.21; 9.19, 9.20)	Recitation
7	2.12.08	T	Control of complement (Chapter 2-22)	Complement mediated killing **Quiz 2 (25 pts)**
	2.14.08	R	Chemotaxis (Chapter 2.5; Appendix IV)	Recitation
8	2.19.08	T	Cytokines and adhesion molecules in innate host defense (Chapter 2.23 – 2.27, 2.29; Appendix III))	Chemotaxis assay
	2.21.08	R	Acute phase response (Chapter 2.28; 8.31-8.33)	Recitation
9	2.26.08	T	NK cells Innate lymphocytes (Chapter 2.30 – 2.34; 9.23)	Hemolymph smear from an invertebrate Extraction of invertebrate lysozyme **Quiz 3 (25 pts)**
	2.28.08	R	Defects in innate immunity (Chapter 12.3, 12.11, 12.12, primary research)	Recitation
10	3.04.08	T	Evolution of innate immunity Invertebrate immune defense (Chapter 16.1 – 16.7)	**Student PowerPoint presentations (40 pts)**
	3.06.08	R	Plant immune defense (Primary research)	**Laboratory Final (100 pts)** **Term paper due (40 points)** **Notebook due (40 pts)**

Final Comprehensive Exam (200 points): Thursday, March 13th 2008, 8:00 – 10:30 am.

Student learning outcomes: Upon completion of this course students will

- be able to appreciate the principles of first line defense
- be aware of similarities of innate immune mechanism throughout evolution
- be able to conduct state-of-the art experiments in the field of innate immunity
- have improved scientific data analysis and interpretation skills and will be better able to judge scientific research data
- be able to communicate scientific data to various audiences

Prerequisites:

- One of the following: MICR 201, MICR 300, BIOL 380, or instructor consent.

Textbook:

- Lecture: Janeway's Immunobiology. 7th edition, 2008, Garland Science; PowerPoint lectures will be posted online Fridays for the following week.
- Laboratory: Laboratory exercises by Dr. Edith Porter. Exercises will be posted online Fridays before the experimental day.

Attendance:

- Lecture and laboratory attendance is mandatory and absences will result in point reductions unless satisfactorily explained.
- Please be prepared that some experiments may run longer than anticipated and that for some experiments you have to come in the following day to read your results.

Performance evaluation: 750 points total

Lecture: 375 points

25 Current research articles
50 Active learning exercises
100 Midterm
200 Final Comprehensive Examination

Current research articles: Once during the course, each student will retrieve a primary research article published during the ongoing quarter (January – March 2008) that is related to the topics of this class. The student will send the article as PDF file to the instructor 1 week prior to the scheduled presentation and the instructor will make the article available to all students of this class. The presenting student will briefly summarize the article and discuss its contents in relation to this class (10 pts). The class mates are expected to participate in the discussion during the entire quarter (15 pts).
Active learning exercises will be incorporated in the lecture and graded (5 pts each).
Midterm: A combination of multiple choice (**small scantron** is required!), true/false, drawings, tables, matching, brief answers, and questions related to the research articles.
Final exam: A combination of multiple choice (**large scantron** is required!), true/false, drawings, tables, matching, brief answers, and questions related to the research articles. The exam will consist of two components: First, individual completion of the exam during the first 100 minutes, then completion of a portion of the exam in small groups of students during the last 45 minutes. The instructor will assign the members of the group. 10 % of the points achieved in the small group exam will be added to the individual scores of the group members.

Laboratory: 375 points

75 Quiz 1, 2, 3 (25 points each)
80 Graphs and figures (publication quality, due 1 week after the experiment)
40 PowerPoint presentations (Group activity)
40 Term paper (scientific manuscript style)
40 Notebook
100 Final Comprehensive Examination

Detailed instructions for the graphs/figures, PowerPoint presentation, term paper and notebook will be discussed during the recitations.

Grades:
Based on the % points achieved out of the total achievable points (750 Points) the students can earn:

	B+: ≥ 87% (653 pts)	C+: ≥ 77% (578 pts)	D+: ≥ 67% (503 pts)
A : ≥ 93% (698 pts)	B : ≥ 83% (623 pts)	C : ≥ 73% (548 pts)	D : ≥ 63% (488 pts)
A- : ≥ 90% (675 pts)	B- : ≥ 80% (600 pts)	C- : ≥ 70% (525 pts)	D- : ≥ 60% (450 pts)

IN BORDERLINE CASES (PASSING/ NON-PASSING OR GRADE LEVELS) PARTICIPATION IN LECTURE AND LABORATORY WILL BE CONSIDERED FOR THE FINAL GRADE.

General Policies:

No make-up examination/test/quiz/reports. Missed events will be set as "0 points" unless satisfactorily justified (e.g. doctors slip). **Assignments turned in late will not be accepted**! No make-up laboratory sessions. Lecture and Laboratory absences need to be satisfactorily justified (such as doctor's appointment), and the students are responsible to acquire the missed material. You must provide your own **laboratory coat, safety glasses, grease pen, pencil and colored markers.**
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/academic/senate/handbook/ch5a.htm.) Students who violate this policy will be subject to disciplinary action, and may receive a failing grade in the course for a single violation. Only the lecture instructor can issue Drops and Incompletes.
You are responsible for the prerequisites for this course and are encouraged to discuss any questions regarding the policies and prerequisites with the instructor.
Students with disabilities: Please contact the instructor ASAP to arrange appropriate accommodations!

Students are strongly encouraged to work with the instructor throughout the course!