

Microbial Genetics
MICR340 Spring 2012 Cal State LA
T/R 4:20 pm – 5:35 pm, SH C246

Instructor

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Office Hours: Tuesdays 5:45pm-6:15pm and Thursdays 3:40pm-4:10pm
Blackboard course: MICR340_sa_SEC01_SP12_CNSS
Cal State LA Blackboard website: <http://www.calstatela.edu/academic/aa/ess/elps/elpsblackboard.php>

Prerequisites

Micr300, grade C or higher

Textbook: Molecular Genetics of Bacteria, 3rd or 2nd ed., by L. Snyder and W. Champness, ASM Press, Washington, DC. Book ISBN or Item Number: 978-1-55581-399-4

Course Objectives

- To understand concepts in microbial genetics including replication, expression and regulation of genes, functions of genetic elements and applications of microbial genetics.
- To develop technical analysis and written communication skills.

Attendance

Attendance is strongly recommended, as examinations will be based on material presented in lectures.

Grading: 400 points total

Examination 1	100
Examination 2	100
Writing exercise	40
Final (comprehensive)	160

Final grades will be based on % of achievable points obtained:

Total points earned / 400 points x 100 = % achieved

	B+: 88-89%	C+: 78-79%	D+: 68-69%	F: ≤ 59%
A: ≥92%	B: 82-87%	C: 72-77%	D: 62-67%	
A-: 90-91%	B-: 80-81%	C-: 70-71%	D-: 60-61%	

In borderline cases (passing/ non-passing or grade levels), lecture attendance and active participation may be considered for the final outcome.

Scientific literature search and writing exercise.

The writing exercise will be worth 40 points and will consist of a summary report that explains a scientific paper (a primary research paper, not a review) related to Microbial Genetics. The paper will be assigned to each student on **April 26th**. It is the responsibility of the student to find the paper via PubMed or library and print it out. The student will study the paper in detail and perform a background literature search to obtain at least two additional references (papers) published before and cited by this paper. The report shall cover the following four sections with clear subtitles: **background** of the research (why do it), major **methods** used (how), **results** obtained (what happened), **conclusions** (significance to the field) and **references**. The explanation should be clear enough that a fellow classmate could read it and understand it. The report should be no more than 5 typed pages with double spacing between lines. Fonts such as Times New Roman or Arial with 12 point size are to be used. The report is due before class on **May 29th**. Reports handed-in late will result in deduction of the final report points (10% deduction per day after due date).

General Information

No make-up examinations. Missed exams will be given as “0 points” unless satisfactorily justified (e.g. doctor’s note). The University Academic Honesty Policy and the Drop/Incomplete Policy explained in the University General Catalogue will be strictly followed. Students are responsible for the prerequisites for this course and are encouraged to discuss any questions regarding the policies and prerequisites with the instructor on the first day of the class. Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.

LECTURE SCHEDULE

<u>DAY/DATE</u>	<u>TOPIC</u>	<u>TEXT CHAPTER</u>
T/April 3	Chromosome structure, replication and segregation (I)	1
R/April 5	Chromosome structure, replication and segregation (II)	1
T/April 10	Gene expression: transcription	2
R/April 12	Gene expression: translation	2
T/April 17	Bacterial genetic analysis (I)	3
R/April 19	Bacterial genetic analysis (II)	3
T/April 24	Examination 1 (100 points)	
R/April 26	Reviewing scientific literature [writing exercise assigned]	
T/May 1	Plasmids	4
R/May 3	Conjugation and transformation	5, 6
T/May 8	Lytic bacteriophages	7
R/May 10	Phage γ and lysogeny	8
T/May 15	Transposition and site-specific recombination	9
R/ May 17	Molecular basis of recombination	10
T/May 22	Examination 2 (100 points)	
R/May 24	DNA repair and mutagenesis	11
T/May 29	Regulation of gene expression [writing exercise due (40 pts)]	12
R/May 31	Global regulatory mechanisms	13
T/June 5	Compartmentalization & sporulation	14
R/June 7	Review & Self-study session	
T/June 12	Final Examination (Tues 4 :30pm-7:00pm) (160 points)	