Syllabus - CELL 2050-01  Genetics  Spring 2010 – Tulane University

Instructor: Dr. Meenakshi Vijayaraghavan        email: mviji@tulane.edu
Class Schedule: MWF 12.00 – 12.50PM, Richardson 117
Office Hours: MW, 9.30- 10.30 AM, or by appt.
Office: 4006 Percival Stern Hall

Course Information and Learning Objectives
Catalog Description: The principles of genetic analysis and the nature of genes, discussion of DNA, chromosomes, and molecular mechanism of replication, mutation, expression, and transmission of heritable characteristics.
Course Objectives: Students are expected to have a firm understanding of the gene, protein synthesis, Mendelian and non-Mendelian inheritance patterns, linkage analysis and microbial genetics.
General Course Description: This course includes a study of basic concepts of classical and molecular genetics and application of genetic principles to biological problems.
Course Learning Outcomes: At the completion of the course, students will be able to
• describe Mendelian inheritance
• describe the structure of chromosome, DNA, and RNA
• describe DNA replication and protein synthesis
• describe the relationship between genes and traits
• recognize and explain the patterns of inheritance
• solve problems related to probability
• apply and appreciate genetic concepts

Pre-requisites: General Biology (CELL 101)

Textbook: Genetics: Analysis and Principles (3rd edition) by Robert J. Brooker
Published by McGraw-Hill

Grading: Home work 10%
Three midterm exams at 15% each 45%
Comprehensive final examination 45%

Final grade 100%

Extra credit work will not be assigned.

Attendance, Homework, and Reading: Attendance will be taken; if you miss too many classes (>3) your grade will be reduced one level (E.g. A to A-) as will be the case when you use cell phones to receive or send voice or text messages. Tardiness in class is not tolerated as is leaving early during the lecture. At the discretion of the instructor, quizzes will be posted on the Blackboard for a scheduled time. They are open-book, but will have a time-limit. Homework sheets will also be distributed in class and will account for 10% of the final grade. Late returns will not be accepted. Syllabus and class schedule are posted on the Blackboard website – http://mytulane.blackboard.com. The tentative lecture topics and assigned textbook readings are given below.

Tentative Class Schedule – MWF (12 - 12:50PM)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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1
January
11 Introduction Chapter 1
13 Mendel’s Laws of Inheritance Chapter 2
15 Chap.2, Extensions of Mendelian Inheritance Chapters 2,4
18 Martin Luther King
20 Extensions of Mendelian Inheritance Chapter 4
22 Reproduction and Chromosome Transmission Chapter 3
25 Reproduction and Chromosome Transmission Chapter 3
27 Reproduction and Chromosome Transmission Chapter 3
29 Chromosome Organization and Molecular Structure Chapter 10
February
1 Chromosome Organization and Molecular Structure Chapter 10
3 Chromosome Organization and Molecular Structure Chapter 10
5 EXAM - I
8 Variation in Chromosome Number Chapter 8
10 Variation in Chromosome Number Chapter 8
12 Variation in Chromosome Number Chapter 8
15 Mardi Gras
17 Linkage and Genetic Mapping in Eukaryotes Chapter 5.2
19 Linkage and Genetic Mapping in Eukaryotes Chapter 5.1
22 Non-Mendelian Inheritance Chapter 7
24 Non-Mendelian Inheritance Chapter 7
26 Non-Mendelian Inheritance Chapter 7
March
1 Molecular Structure of DNA and RNA Chapter 9
3 DNA Replication Chapter 11
5 EXAM - II
8 DNA Replication Chapter 11
10 Gene Transcription Chapter 12
12 Gene Transcription Chapter 12
15 RNA Modification Chapter 12
17 Translation of mRNA Chapter 13
19 Translation of mRNA Chapter 13
22 Translation of mRNA Chapter 13
24 Gene Regulation in Bacteria Chapters 14.1
26 Gene Regulation in Bacteria Chapters 14.2
29-31 Spring Break
April
2-5 Spring Break
7 Gene Regulation in Eukaryotes Chapter 15
9 Exam - III
12 Gene Regulation in Eukaryotes Chapter 15
14 Gene Regulation in Eukaryotes Chapter 15
16 Gene Mutation and DNA repair Chapter 16
19 Gene Mutation and DNA repair Chapter 16
21 Transposition Chapter 17.3
23 Population Genetics Chapter 24.1
26 Review
May
2 Final Exam-1:00 - 5:00PM
**Missed Exam:** All exams are expected to be taken at the scheduled date and time. Score in a missed exam will be recorded as zero. **No make-up exam will be given.** The final exam must be taken at the assigned time (**2nd May, 1:00 - 5:00 PM**). Any makeup of the final exam requires a written excuse to be submitted to and approved by the **Dean**.

**Tulane Honor Code:** Students are expected to adhere to the principles of the Tulane Honor Code at all times. Any violations of this code will not be tolerated. The Honor Code can be found online - [http://studentaffairs.tulane.edu/Judicial/CodeofStudentConduct.pdf](http://studentaffairs.tulane.edu/Judicial/CodeofStudentConduct.pdf).