INTRODUCTORY GENETICS (BIO 2344) FALL 2014

Rm: Klaus 1456
Time: 9:35-10:55

Instructor: Professor John McDonald
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Class Attendance/grading policy: You are expected to attend all lectures. If you miss a lecture, you are responsible for obtaining all notes, announcements, and assignments. Final grades are determined on the basis of 4 exams (90%) and unannounced quizzes/class participation (10%). Written confirmation of a legitimate excuse, such as severe illness, will be required if any exam/quiz is missed otherwise you will receive a grade of "0" on the missed exam/quiz. *No exceptions.* There are no make-up exams/quizzes. Therefore, if you legitimately miss an exam/quiz, your exam/quiz grade will be calculated based on the remaining graded exams/quizzes. If you miss two or more of the four exams (with a legitimate excuse), you will be assigned an "I" for the course.

Textbook: Robert J. Brooker, Genetics-analysis & principles , 5th edition (2014).

Assignments: Problem assignments for each Chapter will be listed on T-square. "In book" assignments will be selected problems found at the end of each Chapter. "Online assignments" can be accessed at the following web site by selecting the relevant Chapter from the drop-down menu (www.mhhe.com/brookergenetics4e).

Lecture ppts: Slides used in each lecture will be posted on T-square prior to each lecture.

Hints for doing well in this class: Come to class and pay attention to the lecture. If you don't understand something, ask questions. Review the slides from each lecture before the following class period. Unannounced quizzes will be "obvious" (i.e., not complicated) questions taken from lecture slides. Exam questions will be taken from the "in book" and "on line" assignments. The Exam questions will be word-for-word from the assigned questions or directly derived from the assigned questions. Thus, if you understand the assigned questions well, you will do very well on the Exams. If you don't understand how to answer any of the assigned questions, be sure to attend one of the weekly review sessions and resolve your question(s). Don't go into an exam without understanding all of the assigned questions if you want to do well on the exams. Be sure that you understand what is being asked in each exam

question. If you are unsure, raise your hand and ask for clarification. Don't feel as though you need to memorize everything in the text. You are not necessarily responsible for knowing all of the material in every chapter. We do not have enough time to cover all of the material in the book. Use the lectures and the assigned questions as guides as to what material you are responsible for knowing on the exams.

Honor policy: Your conduct in the course should conform to the Student Honor Code (http://www.honor.gatech.edu/). Students caught cheating will be reported to the College for disciplinary action.

Tentative Lecture Schedule

I. What is the hereditary material and how does it work?

Lec 1 Aug 19 Introduction/ The Science of Genetics

Lec 2 Aug 21 DNA is the hereditary material Ch 9

Lec 3 Aug 26 DNA structure and replication Ch 11

Lec 4 Aug 28 Transcription and processing Ch 12

Lec 5 Sept 2 Transcription and processing Ch 12

Lec 6 Sept 4 The genetic code/translation Ch 13

Lec 7 Sept 9 The genetic code/translation Ch 13

REVIEW Sept 11

EXAM I Sept 16 (Chap 9, 11, 12, 13)

Lec 8 Sept 18 Gene regulation in prokaryotes Ch 14

Lec 9 Sept 23 Gene regulation in eukaryotes Ch 15

Lec 10 Sept 25 Gene regulation in eukaryotes I. Ch 15

Lecture 11 Sept 30 Gene regulation in eukaryotes II Ch 16

Lec 11 Sept 30 Developmental genetics Ch 25

Lec 12 Oct 2 Developmental genetics/ Ch 25

The genetic basis of cancer Ch 24 (pp619-633)

REVIEW Oct 7

EXAM II Oct 9 (Chap 14, 15, 16, 25, 24)

Oct 10- LAST DAY TO DROP WITH A "W"

FALL BREAK Oct 14

Lec 13 Oct 16 DNA technologies Ch 20

Lec 14 Oct 21 Biotechnology Ch 21

Lec 15 Oct 23 Genomics I Ch 22

Lec 16 Oct 28 Genomics II Ch 23

II. How is the hereditary material (genes) organized and transmitted through generations?

Lec 17 Oct 30 Mitosis & Meiosis/ Chromosomal reproduction and transmission Ch 3

REVIEW Nov 4

EXAM III Nov 6 (Chap 20, 21, 22, 23, 3)

Lec 18 Nov 11 Simple Mendelian genetics Ch 2

Lec 19 Nov 13 Extensions of Mendelian genetics Ch 4

Lecture 20 Nov 18 Non-Mendelian genetics Ch 5

III. How does the hereditary material change and evolve over time?

Lec 21 Nov 20 Gene mutation and repair I Ch 18

Lec 22 Nov 25 Gene mutation and repair II Ch 18

HOLIDAY Nov 27

Lec 23 Dec 2 Recombination and transposable elements Ch 19

Lec 24 Dec 4 Population genetics Ch 26

EXAM IV (FINAL EXAM) Dec 9 (Chap 2, 4, 5,18, 19, 26)