

Honors Genetics: PCB 3063H



Spring 2014
Tuesday and Thursday 12:00 p.m.-1:15 p.m. in BA 207

Instructor: Dr. Christa Diercksen
Office: Biology 201A
Phone: 407-823-6708
Email: christa.diercksen@ucf.edu
Office Hours: By appointment

E-mail is the fastest way to communicate with Dr. Diercksen.

- You must use your Knightsmail account for all faculty e-mail communication.
- All attempts will be made to answer emails within a 24 hour time period, M-F and Sun. Keep in mind that Dr. Diercksen is off line on Saturdays.
- Emails must be written in a professional manner with proper grammar. Include a brief description in the subject line of your question or concern and sign off your email with your full name and PID#, identifying yourself as a genetic student.

Course Objectives: To present the basic concepts of Genetics with Honors content.

- The course will emphasize transmission (classical) and molecular genetic principles.
- Transmission genetics will cover:
 - Chromosome segregation and disorders of chromosome segregation in humans
 - Mendelian genetics
 - Sex determination
 - Eukaryotic gene mapping
- Molecular genetics will cover:
 - DNA structure and replication
 - Storage and expression of genetic material
 - Regulation of gene expression
 - Recombinant DNA technology
- This is an upper division class designed for students who have completed Biology I (BSC 2010C) and two semesters of chemistry (CHM 2045 and CHM 2046).

Required Course Materials:

- Text book: Genetics: A Conceptual Approach: B.A. Pierce, 4rd edition. W.H. Freeman and Company (ISBN: 97814292-32500)

Web site for class material:

- Class materials are available on Webcourses which can be accessed through myUCF.

Classroom Conduct: By enrolling at UCF, all students have agreed to abide by the Golden Rule. Please become familiar with this document at: <http://www.goldenrule.sdes.ucf.edu>

For the best learning environment for everyone, please:

- Arrive and depart on time
- No talking during class
- Place cell phones on vibrate
- Laptop use is allowed for course related use only.
- Students who fail to follow these basic courtesy rules will be asked to leave.

Academic Integrity:

- Cheating in this course will not be tolerated.
- Penalties for cheating can include:
 - A failing grade on an assignment or in the course
 - Suspension or expulsion from the university
 - A "Z Designation" on a student's official transcript indicating academic dishonesty
 - For more information about the Z Designation, see <http://z.ucf.edu/>
- Students who are caught cheating will be immediately referred to the UCF Disciplinary Action Committee.
- Cheating includes but is not limited to:
 - Copying from another student's exam
 - Falsifying information such as notes related to absences
 - Plagiarism on any written assignments
 - Use of unauthorized electronic device during an exam

Grading:**Grade Scale:**

Grade Range	Grade	GPA
90 - 100	A	4.0
87 - 89	A-	3.75
84 - 86	B+	3.25
80 - 83	B	3.0
77 - 79	B-	2.75
74 - 76	C+	2.25
70 - 73	C	2.0
60 - 69	D	1.0
Below 60	F	0

Note that the University considers any GPA above zero a passing grade. Specific program requirements may vary. Beginning in summer 2012, you must have a "C" or above in Genetics to take any Biology course that requires Genetics as a prerequisite.

Course Grade Determination:

- Lecture Exams: 45%
- Comprehensive Final Exam: 20%
- Problem Solving: 20%
- Current topic Powerpoint: 15%

Exams (45% of grade)

- All exams will be a mixture of multiple choice, problem solving, true or false, fill in the blank, matching or short answer format.
- There will be three lecture exams given during the semester; each worth 15% of your total course grade.
- If you miss any of the 3 lecture exams for any reason, the score you receive on the final exam will replace that missed exam's value
 - If you miss a second or subsequent exam, you must provide acceptable documented evidence (e.g. from doctor, police, University official etc.). Excuses must be on letterhead with a contact phone number.
 - This second missed exam will be handled on a case by case basis at the discretion of the instructor.
 - In the absence of acceptable documentation, a grade of 0 will be assigned for the second or subsequent missed exams.
- The Final Exam will be comprehensive, covering all material from the whole semester. This exam can NOT be missed.
- All exam questions will be based on material discussed in class and assigned problem sets.
- Tentative exam dates and chapters covered for each exam are given in the course schedule.
- If you arrive late for an exam, you will be NOT be allowed extra time for the exam.
 - All students must turn in the exam at the regular scheduled end of the exam.

- To facilitate learning, lecture exams will be returned to the student.
 - The Final Exam will not be returned but can be reviewed by appointment with the instructor.
 - By registering for this class, each student agrees that the exams are the intellectual property of the instructor, Dr. Christa Diercksen, and may not be sold, reproduced, shared, or used for any purpose that would provide assistance to students in future classes.
 - The contents of the exams are to be shared only with individuals registered in this class (Spring 2014).

Problem Solving (20% of grade: 15% from completion/5% from participation)

- For every chapter, there will be assigned problem solving exercises from the textbook as well as additional problems and critical thinking exercises.
 - The assigned problems will be available through Webcourses for each chapter.
 - Due dates for the problem sets can be found below in the course schedule.
- Students may work together to complete the problems, but each student must have their own set of completed problems to turn in.
- Students may be called upon to work examples of the completed problems on the board on the day the problems are due.
- Your problem solving grade will come from demonstrated completion of the problems (not necessarily correct but COMPLETED) and participation in the problem solving with the class.
 - Problem sets will be collected in class on the due date to score for completion.
 - Late problem sets will NOT be accepted. If you must miss class on a day problems are due, you may send an electronic version of your answers to Dr. Diercksen by email attachment no later than the beginning of class on the due date (12:00 PM). You may also give your completed problems to another student to turn in for you. You will be given credit for the completion portion of the grade but not the participation.
- All solutions for all problems will be posted in Webcourses *after* the due dates for the problem sets.

Current Topic in Genetics Presentation (15% of grade)

- Each student will select a topic of their choice concerning a current genetics research topic or more general topic in genetics for further exploration.
- Students will create a short presentation (Powerpoint, Prezi, etc.) which will be shared with other students through Webcourses.
- Suggested topics will be provided along with further information concerning the presentation in a forthcoming detailed rubric.
- The instructor must approve the topic before a student begins their research. Final dates for approval will be announced in class.
- The presentation will be due the last day of regular class this semester, April 17, 2014, but may be turned in at any time before that date.

Tentative Course Schedule (subject to change)

Please read the assigned chapters and begin working problem sets before coming to class. **Take special note of exam dates and dates problem sets are due.**

January 7 Syllabus, Chapter 1: Introduction to Genetics and Review of Basic Genetic Terms
January 9 Chapter 2: Chromosomes and Cellular Reproduction

Drop/Swap Deadline: January 9th until 11:59 p.m. Add Deadline until January 10th until 11:59 p.m.

January 14 Continue Chapter 2; Chapter 9: Section 9.3: Aneuploidy
January 16 *Chapter 2 Problems Due*; Chapter 3: Basic Principles of Heredity

January 21 Continue Chapter 3
January 23 *Chapter 3 Problems Due*; Chapter 4: Sex Determination and Sex-Linked Characteristics

January 28 Continue Chapter 4
January 30 *Chapter 4 Problems Due*; Chapter 5: Extensions and Modifications of Basic Principles

February 4 Continue Chapter 5
February 6 *Chapter 5 Problems Due*; Continue Chapter 5; Review for Exam 1

February 11 Exam 1 (Chapters 1-5)
February 13 Chapter 6: Sections 6.1 and 6.2: Pedigree Analysis

February 18 *Chapter 6 Problems Due*; Chapter 7 (stop at pg. 186): Linkage, Recombination and
Eukaryotic Gene Mapping
February 20 Continue Chapter 7

February 25 *Chapter 7 Problems Due*; Chapter 10: DNA: The Chemical Nature of the Gene
Chapter 12: DNA Replication
February 27 *Chapter 10 Problems Due*; Continue Chapter 12, up to 12.5

March 3-7 Spring Break!!!!

March 11 *Chapter 12 Problems Due*; Chapter 13: Transcription
March 13 Continue Chapter 13

March 18 *Chapter 13 Problems Due*; Chapter 14: RNA Molecules and RNA Processing
March 20 Exam 2 (Chapters 6, 7, 10, 12, 13)

March 25 *Chapter 14 Problems Due*; Chapter 15 (stop at pg. 421): The Genetic Code and Translation
March 27 *Chapter 15 Problems Due*; Chapter 16: Control of Gene Expression in Prokaryotes

April 1 Continue Chapter 16
April 3 *Chapter 16 Problems Due*; Chapter 17: Intro and Sections 17.1-17.4: Control of Gene
Expression in Eukaryotes

April 8 Continue Chapter 17
April 10 *Chapter 17 Problems Due*; Chapter 19: Intro and Sections 19.1-19.3: Molecular Genetic
Analysis and Biotechnology

April 15 *Chapter 19 Problems Due*; Continue Chapter 19; Review for Exam 3/Final Exam
April 17 Exam 3 (Modules 10-14)
Current Topic in Genetics Presentation Due

April 22 UCF Study Day

Final Exam: Thursday, April 24, 10:00 AM-12:50 PM

