

# Genetics: BIOL 3060


Fall 2005 Semester  
MWF, 8 – 8:50, SC 130

Dr. Helen Boswell

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Fall office hours: M, W, F: 9:00 – 10:00; Tues: 2:30 – 4:30; plus open door/appointment policy

## Course Objectives:




Genetics is essential to making connections in biology. Understanding principles of inheritance, genetic mechanisms, and population genetics is necessary to study advanced subjects such as cell & molecular biology, evolution, conservation, biotechnology and more. This semester, you will be expected to learn the following: (1) properties and functions of DNA and other genetic molecules, (2) inheritance principles, (3) processes creating genetic variation, (4) genetic applications in technology, and (5) experimental evidence for genetic processes. You will also read & synthesize knowledge from scientific literature.

## Course Requirements:




Two in-class exams, one final exam.  
Three short problem sets.  
Research term paper.

## WebCT:




Access PowerPoint lectures, grades, study guides, problem keys, announcements. Access [www.suu.edu](http://www.suu.edu). Follow the “Current Students” link. In upper left corner of page, follow the “WebCT” link. Your username and password are the same ones that you use to log onto university computers.

## Your Responsibilities as a Student:

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- Show up to class on time!
  - Turn off cell phones during class!
  - Course requirements must be completed independently. Plagiarism of any materials in the course will not be tolerated. If you have been determined to be dishonest in completion of any course requirement, you will receive a zero for that work and depending on the extent of the dishonesty, may fail the course and receive further action from the university.

## Required Text:

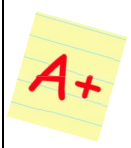
Klug, W.S. and Cummings, M.R. Essentials of Genetics. 5<sup>th</sup> edition. You will have short reading assignments and problem sets for certain chapters.



## Grades:


A:  $\geq 92$ ; A-: 90-91; B+: 88-89; B: 82-87; B-: 80-81; C+: 78-79; C: 72-77; C-: 70-71; D: 65-69; F:  $< 65$

Exam 1: 25%  
Exam 2: 25%  
Final Exam: 25%  
Problem sets: total 3%  
Term paper: total 22%  
Topic & annotated citation: 2%  
Annotated bibliography: 5%  
Final paper: 15%



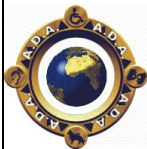
## Policy on Missed exams/Late assignments:

An exam may be taken outside of the scheduled class period or an assignment turned in late without penalty if you experience a serious injury/illness or death in the family. You must immediately notify me and take the missed exam/turn in the late assignment within a day of your return back to school. Other excuses must be evaluated by me on an individual basis. Assignments are due in the beginning of the indicated class period. A letter grade will be deducted for each day that an assignment is turned in late with exceptions noted above.



## American Disabilities Act Statement:

Students with medical, psychological, learning, or other disabilities desiring academic adjustments, accommodations, or auxiliary aids need to contact the Southern Utah University Coordinator of Services for Students with Disabilities (SSD) in Room 206F of the Sharwan Smith Center, phone (435) 865-8022. SSD determines eligibility for and authorizes the provision of services.



### Lecture Schedule

**Note: Assignments, etc. are to be completed BEFORE coming to class on the indicated day.**

Date	Lecture Topic	Reference	Assignments, required readings, etc.
Aug 29	Introduction to genetics	Ch. 1	
31	Mendelian genetics	Ch. 3	p. 39
Sept 2	Mendelian genetics	Ch. 3	“How Mendel’s Peas Become...” (p. 49)
7	Modified Mendelian ratios	Ch. 4	Sections 4.3 & 4.4 (starts p. 62)
9	Modified Mendelian ratios	Ch. 4	<b>Ch. 3 (# 1, 5, 7, 13, 15, 21) due</b>
12	Modified Mendelian ratios	Ch. 4	p. 83
14	DNA structure	Ch. 10	text corresponding to Fig. 10-2 (starts p. 207)
16	DNA structure	Ch. 10	<b>Ch. 4 (# 3, 5, 11, 13, 23) due</b>
19	DNA replication	Ch. 11	p. 219
21	DNA replication	Ch. 11	section 11.3 (starts p. 238)
23	DNA replication	Ch. 11	p. 248
26	Chromosome structure	Ch. 12	p. 254
28	Chromosomes	Ch. 12	<i>Come with questions for exam 1</i>
30	<b>EXAM 1</b>		<b>EXAM 1</b>
Oct 3	Exams; Chromosomes		<i>Exams returned</i>
5	Sex chromosomes	Ch. 5	Klinefelter, Turner, XXX, XXY (starts p. 98)
7	Sex chromosomes	Ch. 5	<b>Topic &amp; one annotated citation due</b>
10	Chromosome mapping	Ch. 8	p. 157 & Fig. 8.1 (p. 158-9)
12	Linkage problems	Ch. 8	“Insights & solutions; Problem #1” (p. 176)
14	Linkage problems	Ch. 8	“Why Didn’t Gregor Mendel...” (p. 175)
17	Transcription	Ch. 13	p. 273
19	Deciphering the code	Ch. 13	“Degeneracy and the Wobble..” (starts p. 278)
21	Mixed copolymers	Ch. 13	<b>Ch. 8 (# 3, 5, 15a, 15b) due</b>
26	Proteins	Ch. 14	Section 14.11 (starts p. 313)
28	Translation	Ch. 14	Fig. 14-6 & Fig. 14-7 (pp. 300-301)
31	Translation	Ch. 14	p. 316
Nov 2	Mutation	Ch. 15	p. 345; <i>Come with questions for exam 2</i>
4	<b>EXAM 2</b>		<b>EXAM 2</b>
7	Exams & Mutation	Ch. 15	<i>Exams returned</i>
9	DNA repair	Ch. 15	“Photoreactivation Repair” (p. 335)
11	DNA repair	Ch. 15	“Proofreading and Mismatch Repair” (p. 338)
14	Chromosomal mutation	Ch. 7	Section 7.2 & Fig. 7-1 (pp. 134-135)
16	Chromosomal mutation	Ch. 7	<b>Full annotated bibliography due</b>
18	Genetics of cancer	Ch. 21	p. 481
21	Cancer	Ch. 21	p. 496
28	Recombinant DNA tech.	Ch. 17	p. 378
30	Recombinant DNA	Ch. 17	p. 14
Dec 2	Conservation genetics	Ch. 24	<b>Final paper due</b>
5	Conservation genetics	Ch. 24	p. 565
7	Ethics in genetics		p. 395
9	Ethics in genetics; Review		<i>Come with questions for final exam review</i>
Dec 14	<b>FINAL EXAM, 7 – 8:50</b>		<b>FINAL EXAM, 7 – 8:50</b>

**Information other than grading, late assignments, makeup work, and attendance policies, may be subject to change with advance notice, as deemed appropriate by the instructor.**