

HUMAN GENETICS

Biol 312 – Spring 2017

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Office Hours:
Mon & Wed 10-11 am
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Required for Lecture: 1) Human Genetics: Concepts and Applications (11th ed) by Lewis. Bookstore Rental.
2) Biol 312 Lecture Guide. For purchase from Bookstore.

Required for Lab: Biol 312 Lab Manual. For purchase from Bookstore

Meetings	Meeting Times
Lecture	Mon, Wed, Fri 11:00-11:50 am; TNR464
Lab Sect 1	Thurs, 9:00 - 11:50am; SCI B212
Lab Sect 2	Thurs, 1:00-3:50 pm; SCI B212

Course Objectives:

- 1) study human genes, their functions, mode of inheritance and mutations causing disorders,
- 2) gain knowledge in the clinical manifestations, treatment and gene therapy of human genetic disorders,
- 3) make informed health decisions and bioethical decisions in your future,
- 4) perform human pedigree analyses and molecular genetic testing.

Course Prerequisite: Biol 210 (Genetics). I will expect that you have good background knowledge of the basic principles of classical and molecular genetics. It will be your responsibility to review appropriate materials if necessary. Your textbook has some outstanding chapters (that we will not have time to cover in lecture) to help you to review major genetic concepts.

Lecture Exams	50%	Lab Reports	35%	Participation	15%
1	12.5	Sibling Comparison	5	Oral (PPT) Presentation	10
2	12.5	Human Pedigree	5	Discussions	5
3	12.5	COMT & Warfarin Genotypes	5		
4	12.5	Human Karyotyping	5		
		CSI Investigation	5		
		Bioinformatics	5		
		Three Genotypes of your Choice	5		

Your final letter grade is calculated as follows: The grading scale is firm.

A = 92.5-100	B = 82.5-86.4	C = 72.5-76.4	D = 59.5-66.4
A- = 89.5-92.4	B- = 79.5-82.4	C- = 69.5-72.4	F = < 59.5
B+ = 86.5-89.4	C+ = 76.5-79.4	D+ = 66.5-69.4	

Attendance Policy: Students who must miss an exam due to religious observances or participation in university sanctioned events should notify me within the first 3 weeks of the beginning of class, so makeup arrangements can be made. Other valid excuses for missing an exam or lab are death in the family, serious illness, or accident. In such cases: (1) you must provide evidence of some kind (e.g. note from doctor), **and** (2) you must reschedule **within 24 hrs** after the date of the deadline. Without a legitimate excuse, no make-up will be allowed.

Academic Misconduct: You are responsible for the honest completion and representation of your work and for the respect of others' academic endeavors. Any act of cheating, plagiarism, or academic misconduct is subject to the penalties outlined in UWS Chapter 14. Please refer to this link for more information:

<http://www.uwsp.edu/comm/wdeering/plag.pdf>

HUMAN GENETICS SCHEDULE

Spring 2017

Week	Date	Topic	Ch: Slides (Lab Pages)
1	Jan 23	Syllabus / Overview of Human Genetics	1
	25	Overview of Human Genetics	1
	27	Cells	2
	26	Choose Genetic Disorder for Future PPT Presentation Isolate your DNA	(3-11) (12-13)
2	30	Cells	2
	Feb 1	Development	3
	3	Development	3
	2	Preparing for Pedigree; (family phenotypes due Feb 12) Genetic Traits Lab (charts due Feb 5)	(14-15) (17-19)
3	6	Single Gene Inheritance	4
	8	Single Gene Inheritance	4
	10	Exceptions to Mendel's Laws	5
	9	(Genetic Traits Chart Due) Directions to Pedigree Analysis; Sibling Comparisons Lab (Report due at end of lab)	(24-25) (16-23)
4	13	Exceptions to Mendel's Laws	5
	15	Sex-Linked Traits	6
	17	Sex-Linked Traits	6
	16	(Family Phenotypes Due) Human Pedigree Lab	(24-31)
5	20	EXAM I	Ch 1-5
	22	Multifactorial Traits	7
	24	Multifactorial Traits	7
	23	(Pedigree Report due) Warfarin & COMT Lab – PCR 2 Oral Presentations	(32-39)
6	27	Genetics of Behavior	8
	Mar 1	Genetics of Behavior	8
	3	Control of Gene Expression	11
	2	Warfarin & COMT & Lab – Gel Electrophoresis 2 Oral Presentations	(40-45)
7	6	Control of Gene Expression	11
	8	Gene Mutation	12
	10	Gene Mutation	12
	9	(Warfarin & ComT Report due) β -Globin Gene Activities; Discussion: Protecting Athletes with Genetic Conditions	(46-47) Insert
8	13	Chromosomes	13
	15	EXAM II	Ch 6-8,11,12
	17	Chromosomes	13
	16	Human Karyotyping Lab Discussion: Debate of a Personal Dilemma	(48-51) Insert

Week	Date	Topic	Ch: Slides (Lab Pages)
	20-24	SPRING BREAK	
9	27	Chromosomes	13
	29	Population Genetics	14
	31	Population Genetics	14
	30	(Human Karyotype Report Due) CSI Lab – PCR Discussion: Nature vs Nurture in Criminal Justice System Discussion: Access by Law Enforcement 2 Oral Presentations	(52-59) (68-69) (70-71)
10	3	Changing Allele Frequencies	15
	5	Changing Allele Frequencies	15
	7	Human Ancestry	16
	6	CSI Lab – Gel Electrophoresis Discussion: DNA, Crime, & Law Enforcement 2 Oral Presentations	(60-67)
11	10	Human Ancestry	16
	12	Genetics of Immunity	17
	14	Genetics of Immunity	17
	13	(CSI Report Due) Bioinformatics Lab – Isolate Cheek DNA & PCR Activities: Genetic Variation in Pops, Genes Trace Human History	(72-81) (96-105)
12	17	Genetics of Cancer	18
	19	EXAM III	Ch 13-17
	21	Genetics of Cancer	18
	20	Bioinformatics Lab – Gel Electrophoresis Discussions: Direct-To-Consumer Genetic Testing 2 Oral Presentations	(82-86)
13	24	Family History: Breast Cancer	344-377
	26	Genetic Technologies	19
	28	Genetic Technologies	19
	27	Bioinformatics Lab – Population Statistics Other Alleles in Your Genome – 2 PCRs Discussions: Genetic Screening and Discrimination	(86-95) (106-113) (118-123)
14	May 1	Genetic Testing & Treatment	20
	3	Genetic Testing & Treatment	20
	5	Reproductive Technologies	21
	4	(Bioinformatics Report Due) <i>Guest Speaker: Genetic Counselor</i> Other Alleles – Gel Electrophoresis Personal Genetics & Debate of a Personal Dilemma 2 Oral Presentations	(114-117) Insert
15	8	Reproductive Technologies	21
	10	Genomics	22
	12	Bioethics	
	11	Discussions: One for the Other, Benefits of Research Discussion: Genetics & Reproduction 2 Oral Presentations	(124-126) Insert
Final	Wed 17	EXAM IV (12:30 – 2:30pm); TNR 464	Ch: 18-22

