BIOL UN3031/GR5031 – Genetics
Lecture and Assignment Schedule Spring 2023
We will send announcements with updates to this schedule, but it is your responsibility to keep current.

Lecture	Date	Lecturer	Lecture	Supplemental Readings	Graded Problem Solving Assignment	Ungraded Homework Assignment
			Unit 1: Basics of Transmission Genetics			
1	1/17	IG	Mendelian Inheritance	**6th edition: 2.1, 2.2, 4.3, 4.4** **7th edition: 1.1, 1.2, 3.2, 3.3** Optional: Mendel (1866) Recommended: Genetic nomenclature		
2	1/19	IG	Mendelian "Extensions"	**6th edition: 3.1, 3.2, 3.3 (68-70 only)** **7th edition: 2.1, 2.2, 2.3 (48-50 only)**		• Available: Ungraded Problem Set I-1 (includes a required video on Chi-squared tests)
3	1/24	IG	Sex linkage and chromosome theory	**6th edition: 4.6, 5.1, 5.2** **7th edition: 4.3, 5.1, 5.2**		• Complete by today: Ungraded Problem Set I-1
4	1/26	IG	Linkage and mapping	**6th edition: 5.3, 5.4 (through p. 149)** **7th edition: 5.3, 5.4 (through p. 134)** Optional: Chalfie (1997)		• Available: Ungraded Problem Set I-2

5	1/31	MA	Genetic mapping in fungi	**6th edition: 5.5, p. 156-162, include problem 44 on p. 178** **7th edition: 5.5, include problem 44, but skip ordered tetrads**		• Complete by today: Ungraded Problem Set I-2
6	2/2	MA	Homologous recombination Nondisjunction and aneuploidy	**6th edition: 6.5, p. 201-207** **12.5, 423-426** **13.4, p. 460-463** **7th edition: 6.5,** **13.5, pp. 413-414, 15.1** Optional: iBiology video (link posted on Canvas)	✓ See course statement for details.	• Available: Ungraded Problem Set I-3
			Unit 2: Human Genetics and Genomics			
7	2/7	MA	Finish aneuploidy Rearrangements in model systems and humans, Part 1	**6th edition: 13.1 and 13.2, p. 437-453** **7th edition: 15.1, 14.1, 14.2**		• Complete by today: Ungraded Problem Set I-3
	2/9		**Exam 1** **Lectures 1-6**			
8	2/14	MA	Rearrangements in model systems and humans, Part 2	**6th edition:** **p. 93, p. 371-373, p. 412-413 + text starts on bottom of 410 "Giemsa staining…", p. 442** **7th edition: 12.2, 13.2 pp. 400-402, 3.1 p. 71**		• Available: Ungraded Problem Set II-1

9	2/16	MA IG	Finish: rearrangements Start: pedigree analysis	**6th edition: 2.3, 4.7** **7th edition: 1.3, 4.4**	✓	
10	2/21	IG	Pedigrees, Calculating risk, extensions, the human genome	**6th edition: 2.3, 4.7** **7th edition: 1.3, 4.4**		• Complete by today: Ungraded Problem Set II-1 • Available: Ungraded Problem Set II-2
11	2/23	IG	Linkage, Positional cloning, Intro to population genetics	**6th edition: 9.3, 10.1 (to p. 344)** **7th edition: 10.3, 11.1 (to p. 330)**	✓	
12	2/28	MA	**Special activity:** Population genetics	Special assignment and In-class problem solving.		• Submit by 10:10AM EST: Preparatory questions for population genetics activity • Attendance required • Complete by today: Ungraded Problem Set II-2.
	3/2		**Exam 2** **Lectures 7-11** **(Pop gen on Exam 3)**			
			Unit 3: Prokaryotic Genetics			
13	3/7	MA	Introduction to bacterial and bacteriophage genetics	**6th edition: 14.1-14.4, p. 487-508** **14.6, p. 511-513** **7th edition: 16.1-16.4, 16.6**		

14	3/9	MA	Mechanisms of mutation, types of mutations	**6th edition: 7.1-7.3** **7th edition: 7.1-7.3**	✓	• Available: Ungraded Problem Set III-1
BREAK	3/13-3/17					
15	3/21	IG	Cracking the genetic code	**6th edition: 7.4, 8.1** **7th edition: 8.1, 9.1**		• Complete by today: Ungraded Problem Set III-1
16	3/23	IG	Gene structure and regulation, bacterial defense systems	**6th edition: 16.1, 16.2, 16.3, 16.5, 18.3 (pp. 631-634)** **7th edition: 18.1, 18.2, 18.3, 18.5, 21.3 (pp. 632-634)**	✓	• Available: Ungraded Problem Set III-2
17	3/28	IG & MA	**Special activity:** CRISPR/Cas9 genome editing			• Submit by 10:10AM EDT: Written assignment for CRISPR discussion • Attendance required • Complete by today: Ungraded Problem Set III-2
	3/30		**Exam 3** **Lectures 13-16**			
			Unit 4: Genetic Approaches to Biological Problems			
18	4/4	IG	Muller's morphs and the nature of mutations	**6th edition: 7.5, 8.5** **7th edition: 8.1, 9.5**		

19	4/6	IG	Genetic screens	**6th edition, 19.1-19.2** **7th edition: 22.1-22.2**	✓	• Available: Ungraded Problem Set IV-1
20	4/11	IG	Genetic mosaic analysis and conditional gene expression	**6th edition: 5.6, 13.4 and 19.3** **7th edition: 5.6, 15.1 and 22.3**		• Complete by today: Ungraded Problem Set IV-1.
21	4/13	IG	Genetic pathways	**6th edition: 19.4** **7th edition: 22.4**	✓	• Available today: Ungraded Problem Set IV-2.
22	4/18	IG	**Special activity:** Epistasis			• Attendance required • Complete by today: Ungraded Problem Set IV-2.
	4/20		**Exam 4** **Lectures 18-22**			
23	4/25	IG	Small RNAs and reverse genetics	**6th edition: 17.4** **7th edition: 19.3**		• Available: Ungraded Problem set V-1
24	4/27	IG	Cancer	**6th edition: 20.4-20.5** **7th edition: 23.4-23.5**	✓	• Complete by today: Ungraded Problem Set V-1