

BISC 110: Good Genes, Bad Genes

Units: 4

Spring 2025

Lecture: Mon, Wed 12-1:20pm

ZHS159

Discussion Section (50 minutes): Tuesdays 9-9:50am, 10-10:50am, 11-11:50am, & 2-2:50pm or Wednesdays 9-9:50am & 10-10:50am

Instructor: Professor Matthew Michael

Office: 116 RRI

Office Hours: By appointment

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Office Hours: By appointment

Course Description and Learning Objectives

BISC 110 will provide non-major undergraduates with a basic understanding of molecular biology, with a particular emphasis on how advances in molecular biological research have impacted medicine, commerce, and society in general. The course will introduce students to the Scientific Method, the basics of experimental design and data interpretation, and will allow students to emerge with an ability to think critically about DNA-based science and how these technologies influence modern life, in both positive and negative ways.

The course is designed to satisfy the GE-D requirement for Core Literacies under the New USC General Education Program.

Prerequisite(s): none

Co-Requisite (s): none

Concurrent Enrollment: none

Recommended Preparation: High School Biology

Course Notes

Standard letter grading will be used.

Required Reading and Supplementary Materials

There is no text book assigned for this course. Short reading assignments will be issued throughout the semester.

Description and Assessment of Assignments

BISC101 is a standard, lecture-based course. Students are expected to attend lecture and discussion section. Student learning will be assessed through Quizzes in Discussion section and through two Exams held during Lectures.

Grading

There will be 12 discussion sections held throughout the semester (see schedule). Each discussion section will review the previous week's material and then there will be a 10-point quiz. The lowest two quiz scores will be dropped, and thus your section grade will be based on 10 x 10-point quizzes. If you miss a discussion section for any reason, no need to contact the teaching staff as we will count that as a drop. If you miss two discussion sections throughout the semester no need to contact the teaching staff as you have two drops to cover the absences. If you miss two discussion sections and then miss a third we require a note from your doctor stating that you were seen and we will call and verify the information. Without a verified note from your doctor any missed quiz counts as zero after your two drops are used up. All quizzes must be taken in person in discussion. Attendance at discussion will be taken. If you take your quiz remotely you will get a zero. The quiz scores comprise 1/3 of the final grade. There will also be two exams held during lecture, each worth 100 points and these comprise the remaining 2/3 of the final grade. So, quizzes = 100 total points, Exam 1 = 100 points, Exam II = 100 points for 300 possible points. There are no makeup exams!! If you miss an exam due to illness and supply a verifiable note from the doctor you will not be penalized, we will simply pro-rate your other scores to determine the final grade. Missing section or exams for personal reasons (family ski trips, etc) results in a zero. This course is not typically curved.

Assignment Submission Policy

n/a

Additional Policies

Required reading: All assigned reading is required and this material is fair game for the quizzes.

BISC110 schedule Spring 2025

Lectures:			Sections:		
Date	Lec #	Topic	Dates	Section #	Section coverage
13-Jan	1	Syllabus			
				NO SECTIONS	
15-Jan	2	Darwin			
20-Jan	HOLIDAY				
			21,22-Jan	1	Lec 1 and 2
22-Jan	3	Mendell			
27-Jan	4	Chromosomes			
			28,29-Jan	2	Lec 3
29-Jan	5	DNA			
3-Feb	6	Watson & Crick & Franklin I			
			4,5-Feb	3	Lec 4 and 5
5-Feb	7	Watson & Crick & Franklin II			
10-Feb	8	DNA replication & repair			
			11,12-Feb	4	Lec 6 and 7
12-Feb	9	Cracking the code			
17-Feb	HOLIDAY				
			18,19-Feb	5	Lec 8 and 9
19-Feb	10	The Central Dogma			
24-Feb	11	Gene Expression			
			25,26-Feb	6	Lec 10
26-Feb	12	Playing God			
3-Mar	13	Playing God II			
			4,5-Mar	7	Lec 11 and 12
5-Mar	no lecture	EXAM I	Covers lectures 1-13		
10-Mar	14	Genes & Profits			
				NO SECTIONS	
12-Mar	15	The Human Genome Project			
24-Mar	16	GATTACA			
			25,26-Mar	8	Lec 14 and 15
26-Mar	17	Genetics in Film & TV			
31-Mar	18	DNA disease			
			1,2-Apr	9	Lec 16 and 17
2-Apr	19	Who owns the DNA?			
7-Apr	20	Gene Therapy			
			8,9-Apr	10	Lec 18 and 19
9-Apr	21	Personalized Medicine			
14-Apr	22	CRISPR			
			15,16-Apr	11	Lec 20 and 21
16-Apr	23	CRISPR II			
21-Apr	24	Cloning animals and people			
			22,23-Apr	12	Lec 22 and 23
23-Apr	25	PCR & CSI			
28-Apr	26	Modern topics in DNA science			
				NO SECTIONS	
30-Apr	no lecture	EXAM II	Covers lectures 14-26		

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.