

BISC 110: Good Genes, Bad Genes

Units: 4

Spring 2020

Lecture: Mon, Wed 12-1:20pm in ZHS 252

Discussion Section (50 minutes): Tuesdays 9-9:50am & 2-2:50pm or Wednesdays 9-9:50am, all in ZHS 460

Instructor: Professor Matthew Michael

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Office Hours: By appointment

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Course Description and Learning Objectives

BISC 101 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

The Gene, An Intimate History by Siddhartha Mukherjee (Scribner, 2016).

Amazon link:

https://www.amazon.com/gp/product/147673352X/ref=ox_sc_act_title_1?smid=ATVPDKIKX0DER&psc=1

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 Exams in lecture and Quizzes in Discussion section.

Grading Breakdown

Section Quizzes	100 points	33% of Final Grade
Midterm Exam	100 points	33% of Final Grade
Final Exam	100 points	33% of Final Grade

Assignment Submission Policy

n/a

Additional Policies

Missed Exams: **There are no make-up exams in this course.** There are just two conditions where a missed exam will be excused. One, if you are too sick to come to campus and take the exam then you will be excused but you will need to provide a note, signed by your doctor with the doctor's contact information on it. **The note must state clearly that you were too sick to take the exam.** Notes that simply say "the student was seen" will not count as an excuse. The information will be validated and once validated you will not be penalized for missing an exam. Two, if you are out of town for an official USC activity, for example an athletic event or theater performance, then you will be excused after providing a signed letter from the USC department that is sponsoring the trip. Students who are excused from an exam will see their final grade determined by prorating the missed exam score to the score achieved on the exam that was taken, relative to the class average. Here's how this works:

Example from a previous semester

Midterm exam class average: 87/100 Final exam class average: 63/100

Student took midterm and was excused from the final. Student scored 73 on midterm. $73/87 = 83.9\%$ and thus the prorated score for the excused final will be $83.9\% \times 63 = 53$.

Discussion sections: Students are required to attend their assigned discussion section. Sections will be held for 12 of the 16 weeks in the semester (see course schedule) and each meeting will feature a roundup of the previous week's topics, time for q&a, and then a 10 point quiz that covers the previous week's topics. The two lowest scores from the 12 quizzes will be dropped, and thus there are 100 points available through the quizzes. There are no makeup quizzes and thus if you cannot attend discussion section then you can use one of your two drops so that you are not penalized. Lecture notes will **not** be posted on Blackboard for this course. A list of key bullet points will be presented and reviewed in the Discussion Sections.

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

Lectures Schedule:

<u>Dates</u>	<u>Topic</u>	<u>Assigned Reading</u>	<u>Associated Media</u>
1/13 – 1/22	In The Beginning: Darwin & Mendel	The Gene pp. 15-63	Charles Darwin & The Tree of Life (BBC)
1/27 – 2/12	Chromosomes, DNA & The Central Dogma	The Gene pp. 87-199	The DNA Double Helix Discovery (HHMI BioInteractive) Secret of Photo 51 (NOVA)
2/19 – 3/2	Genes, Politics & Profits	The Gene pp. 201-244	DNA: Playing God (PBS)
3/4	MIDTERM EXAM		
3/9 – 3/30	The Human Genome & Human Disease	The Gene pp. 254-326	Cracking The Code of Life (NOVA)
4/1 – 4/8	Gene Therapy & Personal Genomics	The Gene pp. 415-483	
4/13	How DNA Puts People in Jail		
4/15 – 4/27	DNA Goes Hollywood		GATTACA (Columbia Pictures)
4/29	FINAL EXAM		

Discussion Section Schedule:

Sections will meet every week of the semester with the following exceptions:

Week of 1/13 – first week of class

Week of 3/9 – week after Midterm exam

Week of 4/27 – last week of class

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.