

## **BISC 110: Good Genes, Bad Genes**

**Units: 4**

**Spring 2021**

**Lecture: Mon, Wed 12-1:20pm (pre-recorded)**

**100% Online**

**Lecture will be live on Day 1 and recorded and posted thereafter. Recorded lectures will be posted by the assigned time (M,W at noon) and often prior to the assigned time.**

**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:** Virtual

**Office Hours:** By appointment

**Contact Info:** mattm@usc.edu

**Teaching Assistants: Carla Vidal Silva (vidalsil@usc.edu) & Bryan Dinh (bldinh@usc.edu)**

**Office Hours:**

Monday 10 AM - 11 AM Pacific (Bryan)

Zoom link:

<https://usc.zoom.us/j/97615386870?pwd=OWImS3lUYXI1WmN3RUdwWGErWlIKdz09>

Monday 7 PM - 8 PM Pacific (Carla)

Zoom link: <https://usc.zoom.us/j/7890787512>

### **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](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 Quizzes in Discussion section.

## **Grading**

There will be 11 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 quiz score will be dropped, and thus your grade will be based on 10 x 10-point quizzes. Given the 100% online format for this course, there will be no makeup quizzes!! If you miss a discussion session you can use your drop for this and thus you will not be penalized. The quiz scores comprise all of the grade; there will be no papers, or writing assignments, or any other form of graded work beyond the quizzes.

## **Assignment Submission Policy**

n/a

## **Additional Policies**

Missed Exams:

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

**BISC110 schedule Spring 2021**

Lectures:				Sections:		
Date	Lec #	Topic	Reading	Date	Section #	Section coverage
20-Jan	1	Syllabus				
25-Jan	2	Darwin	15-46			
27-Jan	3	Mendell	47-63			
1-Feb	4	Chromosomes	87-100	2-Feb & 3-Feb	1	Lec 2 and 3
3-Feb	5	DNA	111-118 & 133-137			
8-Feb	6	Watson & Crick & Franklin I	139-160	9-Feb & 10-Feb	2	Lec 4 and 5
10-Feb	7	Watson & Crick & Franklin II	139-160			
15-Feb	<b>HOLIDAY</b>			16-Feb & 17-Feb	3	Lec 6 and 7
17-Feb	8	DNA replication & repair				
22-Feb	9	Cracking the code	161-171			
24-Feb	10	The Central Dogma	172-185			
1-Mar	11	Cloning genes	203-214	2-Mar & 3-Mar	4	Lec 8-10
3-Mar	12	Genes & Politics	225-235			
8-Mar	13	Genes & Profits	236-244	9-Mar and 10-Mar	5	Lec 11 and 12
10-Mar	14	The Human Genome Project	215-224			
15-Mar	15	Genome II	306-321	16-Mar and 17-Mar	6	Lec 13 and 14
17-Mar	16	PCR & CSI				
22-Mar	17	GATTACA		23-Mar and 24-Mar	7	Lec 15 and 16
24-Mar	18	DNA disease	437-441			
29-Mar	19	Who owns the DNA?		30-Mar and 31-Mar	8	Lec 17 and 18
31-Mar	20	Gene Therapy	423-436			
5-Apr	<b>WELLNESS</b>					
7-Apr	<b>WELLNESS</b>					
12-Apr	21	Personalized Medicine		13-Apr and 14-Apr	9	Lec 19 and 20
14-Apr	22	CRISPR				
19-Apr	23	Cloning animals and people		20-Apr and 21-Apr	10	Lec 21 and 22
21-Apr	24	Modern topics in DNA science				
26-Apr	25	Modern topics in DNA science		27-Apr and 28-Apr	11	Lec 23-25
28-Apr	<b>NONE</b>					

## 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](http://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](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.