I will provide supplemental reading and visual information for you on Blackboard.

I. Learning outcomes

1. Gain a better understanding of selected topics in the field of molecular genetics and biochemistry.
2. Develop an appreciation for appropriate experimental design in answering questions in molecular genetics and biochemistry.
3. To understand how “big data” is generated in the field of molecular biology and biochemistry.
4. Improve ability to critically read primary scientific literature.
5. Improve skills for communicating ideas, both orally and in writing.

II. Course Description

Few fields in biology are developing more rapidly on more fronts and with more excitement than molecular genetics and biochemistry. BISC 502a is an introduction to the biology of the genetics with an emphasis on a classic and current experiments. General topics include DNA replication, genome mapping and the transcriptome. Classes will be a combination of lectures, group work questions, discussions/presentations of original research articles and exams. An emphasis is placed on developing skills related to independent exploration of the subject. Of course, respect and support for your classmates (and your professor) during discussions is expected. We will also read and analyze original research articles. While the book does an excellent job of giving us the basics of biology, papers will provide us with cutting edge hypothesis and results. Class presentations and discussions based on these papers will improve your critical and creative thinking and what is more beautiful than a creative and curious mind.
III. Grading

40% exams (20% each), 25% group work questions, 25% paper presentations, 10% active participation

IV. Description of Assessment of Assignments

There will be 2 exams for the class, one midterm and one final. Each exam will be worth 20% of your grade. The exams will not be memorization of facts, instead they will test your ability to think critically and creatively about topics we have covered in class. Exam dates are firm. The evaluation of your effort in the course will depend to a significant degree on active participation (10%) in discussions in addition to paper presentations and group questions. 'Active participation' means not only regular attendance at lectures, but demonstrated intellectual engagement in discussions (e.g. reading the assigned pages prior to class, asking informed questions, raising provocative issues, contributing interesting observations, and helping to answer questions posed by others). Paper presentations will be group assigned (25%). Each group of 2-3 students will be responsible for presenting the paper to the class on the assigned day. It is not expected that you fully understand the paper in its entirety, however, it is expected that you present the basic concepts/figures/questions of the paper so that our class discussions may be fruitful. I am always available to answer any questions you might have via email or office hours prior to assigned presentation. I will be sure to post the paper on blackboard quite a bit ahead of time. I will also present the first paper of the semester myself to establish a guideline for you. Group work questions (25%) will be due to me via email on the dates listed below. You can find the questions at the end of every chapter in the Short Answer Question Section. Groups will be assigned in class. I will post your grades for all assignments on blackboard throughout the semester as quickly as I can so you know your standing in the class. If you ever are unsure of your grade or have any questions please feel free to reach out to me in person or via email. I am willing to regrade all exams and group work questions. However, you must return the assignment to me within one week of when I return it to you with a written response of what you believe should be regraded. I reserve the right to regrade the entire assignment.
V. Schedule

8/20, 8/22: Introduction to Genomes, Transcriptomes and Proteomes (Ch. 1)

8/27, 8/29: Studying DNA (Ch. 2)
Questions: Short Answer 1, 5, 7, 11 (Due 8/28)

9/3: Labor Day Holiday

9/5, 9/10: Genome Mapping (Ch. 3)
Questions: Short Answer 3, 4, 5, 12 (Due 9/9)

9/12, 9/17, 9/19: Genome Sequencing (Ch. 4)
Questions: Short Answer 3, 4, 6, 9 (Due 9/18)

9/24, 9/26: Genome Annotation (Ch. 5)
Questions: Short Answer 1, 5, 11, 12 (Due 9/25)

10/1: Exam Review

10/3: Midterm Exam

10/8, 10/11: Identifying Gene Functions (Ch. 6)
Questions: Short Answer 2, 5, 8, 10 (Due 10/10)

10/11, 10/15, 10/17: Gene Networks (reading tbd on blackboard)

10/22, 10/24, 10/29: Genomes of Euk, Pro, Viruses (Ch. 7, 8, 9)
Questions: Short Answer 7, Ch 7. Short Answer 1, Ch 8. Short Answer 2, Ch 9. (Due 10/28)

10/31, 11/5, 11/7: Transcriptomes (Ch. 12)
Questions: Short Answer 2, 11, 12 (Due 11/6)

11/12, 11/19: Proteomes (Ch. 13)

11/21-11/25: Thanksgiving Holiday

11/26, 11/28: Proteomes (Ch. 13)
Questions: Short Answer 1, 4, 5, 12 (Due 11/27)

12/3: Study Day - Exam Review

12/7: Final Exam, 2-4
VI. 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 Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. 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.

VII. Support Systems

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.
 Provides overall safety to USC community. dps.usc.edu