**Spring 2019**

 **BIOL202H Syllabus: Honors Molecular Biology and Genetics**

**TuTh 9:30-10:45 GSB 1378**

 **Profs. Kerry Bloom Fordham Hall room 623 (****kerry\_bloom@unc.edu****)**

 **& Joe Kieber GSB room 4163 (****jkieber@unc.edu****)**

**Your instructors**

**Prof. Kerry Bloom** Fordham Hall 623

Office hours: Tues. Thurs 1 to 2, or by appointment

 Web page: <http://www.bio.unc.edu/Faculty/Bloom/>

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**Dr. Joe Kieber** GSB 4163
Office hours: Tues. Thurs 11:00 to 12:00, or by appointment

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**Main Goals of the course**

1. To provide you with the core principles of genetics and molecular biology.

2. To gain higher level thinking skills that are necessary for scientists.

3. This course should excite you about basic science and its applications.

**Expectations**

The course is composed of two class meeting. **This is NOT a class for passive learners. You are expected to be actively engaged in this course through class discussions, class activities and pre- as well as post-lecture assignments and readings.**

It is expected that you will spend several hours reading/working problems associated with each class. If you stay on top of your reading and homework, there will be no need to cram for an exam. Practice, practice, practice. Do problems that are assigned and then do others that are not assigned! Use the internet or other textbooks in the library to find more problems if you run out from your textbook.

**Textbook and Additional Readings**

**Griffiths et al., 11th edition Introduction to Genetic Analysis ISBN-13: 978-1-4641-0948-5**

The textbook is available in the bookstore. This text comes with a web-based software package called **LaunchPad (**http://www.macmillanhighered.com/launchpad/iga11e/7362208) that complements the textbook. Readings and quizzes will be assigned weekly using the **LaunchPad** platform.

There is a very large amount of material covered in this course. Students are expected to have read the material **before** lecture; be prepared to listen, ask questions, and discuss the lecture material.

Additional readings will be assigned that include primary literature, classic papers and current articles relevant to the lecture topics. Part of a lecture each week will be devoted to discussing this material. Your participation in these discussions will be part of your final grade.

**Class Attendance**

Students are expected to attend and participate in class meetings. While the course follows the textbook, some of the material discussed in lecture may not be found in the text. You are responsible **for all material and announcements made in lectures**. You are not responsible for material that was not covered in class, **unless it was specifically assigned (see detailed schedule for assigned readings)**.

**Grading**

The material taught in class meetings and labs will be tested separately but the grades are combined for the final course grade. Your grade for this course will be determined as follows:

2 midterm exams = (25% each)

1 semi-cumulative final exam (40%)

Class participation (10%)

Grades will not be assigned for individual exams, only points; you will be able to see how you did from a posted distribution of scores after each test. Final grades will be assigned on the total number of points for the entire semester.

**THE PROFESSORS RESERVE THE RIGHT TO MAKE CHANGES TO THE SYLLABUS, INCLUDING LECTURE TOPICS AND TEST DATES. THESE CHANGES WILL BE ANNOUNCED AS EARLY AS POSSIBLE.**

The Department of Biology values the perspectives of individuals from all backgrounds reflecting the diversity of our students. We broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. We strive to make this classroom and this department an inclusive space for all students.

**Date Topic Lecturer**

## Thurs 1/10 Intro to class KB

Tues 1/15 The Genetic Revolution Chapter 1 KB

## Thurs 1/17 Genetic Definition of a Gene Chapter 2 KB

Tues 1/22 Independent Assortment Chapter 3 KB

## Thurs 1/24 Mitosis/ Supplement, Appendix 2-1. 2-2 KB

### Tues 1/29 Linkage and recombination Chapter 4 KB

Thurs 1/31 Meiosis and mechanisms of recombination Chapter 4 KB

Tues 2/5 Pathway Analysis Chapter 6 KB

Thurs 2/7 Suppression Genetics Chapter 6 KB

Tues 2/12 **Exam I** KB

Thurs 2/14 Genetics of Complex Phenotypes KB

Tues 2/19 Dynamic ChromatinKB

## Thurs 2/21 Large scale chromosome changes KB

Tues 2/26 Chromothripsis KB

Thur 2/28KB

Tues 3/5 Bacterial Genetics I JK

## Tues 3/7 DNA structure/Replication JK

## Tues. 3/8-18 Fall Break

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Tues 3/19Functional Genomics RNA transcription and Processing JK

## Thurs 3/21 Exam II JK

## Tues 3/26 Translation and Proteins JK

## Thurs 3/28 Regulation of Prokaryotic Transcription I JK

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## Tues 4/2 Regulation of Prokaryotic Transcription II JK

Thurs 4/4Eukaryotic gene regulationJK

Tues 4/09 Recombinant DNA Technology JK

Thurs 4/11 Recombinant DNA Technology IIJK

Tues 4/16 Mutation JK

Thurs 4/18 Repair and recombination JK

Tues 4/23 Cell cycle and cancer JK

Tues 4/25 Course wrap up JK

**Final Exam:** **at 8:00 am**, **comprehensive**.