

**Advanced Special Topics in Biology:**  
**Modern experimental approach in zebrafish to study human-relevant biology and disease**  
**(BIOL 680 Section 002)**

**Spring 2019**

**Dr. Celia Shiau**

TIME: MONDAY 2:30-3:20 PM

LOCATION: Genome Sciences Building GSB 4101

COURSE TYPE: 1-credit hour interactive learning course

This course will survey and delve into the methods, experiments, and unique strengths of the zebrafish model system to investigate a wide range of important vertebrate biology for advancement of scientific knowledge, technology, and possible biomedical applications.

**Instructor:**

**Dr. Celia Shiau**

**Email: [shiauce@unc.edu](mailto:shiauce@unc.edu)**

**Office location: 4352 GSB**

**Office Hours: TBA**

**Sakai Site:**

You must have your onyen to log on. Lecture materials, required readings, homework assignments, and announcements mentioned in class will be posted here. *It is your responsibility to check it regularly.*

**Required Reading, Homework, and Quizzes (50% of your final grade):**

See syllabus and check Sakai site for posting. There are no required textbooks. Book chapters, primary literature, and review papers will be assigned for homework to be read ***prior*** to each class. You will be given guided reading assignments (posted on Sakai) to help guide you through the assigned readings, which you will complete and turn in at the beginning of each class for credit. Completing the assigned readings and guided reading assignments or quizzes will be essential for participating in-class activities and your success in all class projects. No make-up work will be allowed!

**Required Prerequisite:**

Strong academic knowledge of molecular and cellular biology as demonstrated by a B- or above in BIOL 205, or with instructor's permission. Course is designed for graduate students and upper level undergraduate students.

**Participation (25% of your final grade):**

A mix of different types of discussions, group activities, and Poll Everywhere questions can be expected during each class meeting. IMPORTANT NOTE: missing just 1 class can quickly affect your participation grade—no make-up work will be allowed!

**Presentations and papers (25% of your final grade):**

There will be one midterm and one final paper in addition to student presentations that will account for this portion of the grading. No make-up exams except in special medical or family emergencies documented by the dean's office in writing prior to missing exam.

**How is your grade determined at the end of the semester?**

Total Grade % = (0.50 x required reading/homework/quizzes) + (0.25 x participation score) + (0.25 x presentations/papers)

**Digital etiquette:**

This course will require you to use your laptop and/or cell phone during class time. Please be respectful of your classmates and restrict your use of digital devices to course content. You will learn more if you concentrate on the course while you are here and your classmates will thank you for not impeding their ability to learn.

**What you should bring to each class:**

1. Printed or digital version of the assigned reading articles
2. Outlines from Sakai when available (either printed or on laptop)
3. Extra blank paper for drawings, notes, and activities (or tablet computer for drawing)
4. POLLEVERYWHERE device: electronic device with internet access
5. Your open and curious mind!

**Diversity statement:** 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.

**Honor code:** All work done in this class must be carried out within the letter and spirit of the UNC Honor Code. You are expected to maintain the confidentiality of all exams by divulging no information about any exam to a student who has not yet taken that exam. No plagiarism allowed in any work related to this course. You are also responsible for consulting with your professors if you are unclear about the meaning of plagiarism or about whether any particular act on your part constitutes plagiarism. Please talk with the professor if you have any question about the Honor Code.

**Copyright policy:** All course materials including your class notes and in-class assignments are covered by University Copyright Policy @ <http://www.unc.edu/campus/policies/copyright%20policy%2000008319.pdf>. ***This means it is illegal and an honor code offense to share your notes or any other course materials items with anyone not directly affiliated with this particular class. No uploading to non-class sharing sites.***

## Class Schedule for BIOL680 Section 002

Date	Class meeting #	Assignments to be completed <b>BEFORE</b> this class (either email Dr. Shiau your assignment or submit it in person at the beginning of class)	Topics covered
Mon 1/14	1	NO CLASS, but you have an assignment to complete.  Complete Guided Reading Assignment (GRA#1) for:  <b>Book Chapter:</b> read pages v-x of the “Prelude” section in the book “Cancer and Zebrafish Mechanisms, Techniques, and Methods” edited by David Langenau 2016 and complete the GRA.  Email Dr. Shiau GRA #1 by 1/14 at 2:30 pm for full credit.  (Note: all materials are posted on sakai.)	-Overview: Zebrafish as an experimental model -Case study: How zebrafish makes a powerful model to study disease biology (using cancer as an example)
Mon 1/21	2	NO CLASS—MLK JR holiday	
Mon 1/28	3	Complete Guided Reading Assignment GRA#2 for: <b>Book Chapter:</b> Chapter 2 in Methods in Cell Biology- Pages 31-54 “Innate immune cells and bacterial infection in zebrafish” Astin, Keerthisinghe, Du, Sanderson, Crosier, Crosier, and Hall 2017	-Overview: Zebrafish as an experimental model -Case study: How zebrafish makes a powerful model to study disease biology (using cancer as an example) - Techniques: use of zebrafish to study innate immunity
Mon 2/4	4	TBD	
Mon 2/11	5	TBD	
Mon 2/18	6	TBD	
Mon 2/25	7		<u>Student presentations</u>
Mon 3/4	8	Mid-term paper due	<u>Student presentations</u>
Mon 3/11	9	NO CLASS—Spring break!	

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Mon 3/18	10	TBD	
Mon 3/25	11	TBD	
Mon 4/1	12	TBD	
Mon 4/8	13	TBD	
Mon 4/15	14		<u>Student presentations</u>
Mon 4/22	15	Last day of class—	<u>Student presentations</u>
<b>FINAL Tuesday May 7th 8:00 am—paper due</b>			