

# Cell and Developmental Biology (BIOL 205) Section 007

SPRING 2020

MONDAY, WEDNESDAY, and FRIDAY 3:35pm-4:45pm

Dr. Blaire Steinwand and Dr. Kacy Gordon

Coker 201

## **INSTRUCTORS:**

**Dr. Blaire Steinwand**

[blairejs@email.unc.edu](mailto:blairejs@email.unc.edu)

Office location: Coker 212

Office hours: Thursday 1:30-3:30pm and Friday 12:10-1:10pm

*I use sign up – please go to Sakai and sign up for office hours so that I know you are coming*

**Dr. Kacy Gordon**

[kacy.gordon@unc.edu](mailto:kacy.gordon@unc.edu)

Office location: Fordham 316

Office hours: Thursday 10:30-11:30 am

*We are also available by appointment.*

*Please contact us if you cannot meet during the times listed here!*

**Graduate Teaching Assistants:** Angana Mukherjee ([amukherjee@med.unc.edu](mailto:amukherjee@med.unc.edu)) and Emily Harmon ([eaharmon@live.unc.edu](mailto:eaharmon@live.unc.edu))

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## **SAKAI SITE**

(you must have an onyen to log on – go to

<https://itsapps.unc.edu/improv/#UserCreateOnyenPlace:createOnyen> if you do not have an onyen.) The Sakai site will have postings from lectures such as outlines, power point slides, lecture goals and objectives, and supplemental material we mention in lecture. We will also post announcements regarding student concerns on this site. It is your responsibility to check it regularly.

REQUIRED TEXT for 1<sup>st</sup> half of the course:

Essential Cell Biology. 5<sup>th</sup> Edition Ebook (all-digital) +SW5+Animations Red Card

REQUIRED TEXT for 2<sup>nd</sup> half of the course: Principles of Development. 5<sup>th</sup> Edition by Lewis Wolpert, Cheryll Tickle, and Alfonso Martinez Arias

**REQUIRED PREREQUISITE:** Basic knowledge of biology and chemistry as demonstrated by a C- or above in BIOL202

**QUIZZES: (7% of your grade):** Quizzes will be due the morning before nearly every class period at 1:00PM. All quizzes are timed. **It is your responsibility to complete the guided reading assignment prior to starting the quiz so that you can finish within the hour that you are given.** Late quizzes will receive a zero. **DO NOT ASK US TO MAKE AN EXCEPTION TO THIS RULE.**

**PARTICIPATION (3% of your final grade):** As an incentive to come to class prepared and be engaged, 3% of your grade will come from a program called Poll Everywhere that you use through your laptop or mobile phone and in-class activities. Note - missing just a couple of classes can quickly affect your participation grade! **NOTE: even if you have previously registered as a poll everywhere user, you MAY NEED TO REGISTER AGAIN as Poll Everywhere at UNC-Chapel Hill has undergone some recent changes. Please visit [poll.unc.edu](http://poll.unc.edu) to register and check to see that your poll responses are going through regularly!**

**DIGITAL ETIQUETTE:** This course will require you to use your laptop and/or cell phone during class time. While I recognize that you are an excellent multi-tasker, research suggests that your peers are not. Please be respectful of your classmates and restrict your use of digital devices to course content. If we see that you or your peers are distracted, we will ask you to put your devices away and you may forfeit your ability to earn participation points that day. There will be times when you have completed your work or answered a poll question, but your peers have not. We ask that you assist your peers when appropriate or use the time to review your notes while you wait. I understand that your devices connect you to your friends and family (a wonderful thing!) but the classroom should be a place apart, however briefly (even if it seems like an eternity to you), from the outside world and distractions. 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.

**PIAZZA:** There are hundreds of you and your questions are important to us. However, it is often difficult for a single instructor with so many students to address all of the e-mails that are received throughout the course of the semester. Therefore, in order to address your questions and concerns more efficiently, we will be using an online platform called "Piazza" this semester. You may post any questions that you have about the course to this site at any time and they will be answered by either a fellow student, a TA, or your instructor. Your questions may be more general and may relate to the course itself or they may be more specific and instead relate directly to content and/or material from class. In any case, Piazza will help you get them answered ASAP. With the exception of private/personal questions and concerns (which are always welcome in our inboxes) please direct all questions to this discussion board. You will receive a welcome e-mail from your instructor granting you access to the course within the first week of the semester and can start using Piazza right away.

**WHAT YOU SHOULD BRING TO CLASS EVERY DAY:**

1. Outlines from Sakai when available (either printed or on laptop).
2. Extra blank paper for drawings, notes, activities etc. (or tablet computer for drawing)
3. 3 x 5 index cards (with or without lines, preferably white).
4. POLL EVERYWHERE device: either your cell phone for texting or laptop/ipad/smartphone for web access

**RECITATION (5% of your final grade):** Attendance and participation in one of the recitations sections is required. These recitations are an extension of the class and allow time to go beyond material in class. They are not “help sessions”, but they will extend your knowledge of the field of cell and developmental biology. Material covered in recitation may be covered on exams too. For recitation, you may also be given pre-class assignments or in-class assignments, each worth 5 points, that are designed to reinforce and deepen your understanding of the material related to the course. Your pre-class recitation assignments must be printed and handed in at the beginning of recitation. In-class assignments are typically group problems. You must work out this problem in groups and turn in one answer on behalf of the group during the recitation period. There will be no make-up opportunities for in-class assignments if you do not attend a recitation in a given week. You may earn up to 5 additional points, during each half of the semester for class participation during the recitation sessions. If you are unable to attend the recitation for which you are registered one week, you may attend another section with prior permission of the TAs if there is room in another section. There is a maximum capacity for each section so please do not assume that you can attend another section if you miss a recitation.

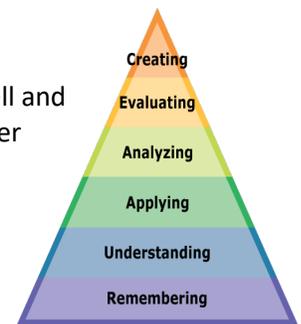
**DIVERSITY STATEMENT:** The Department of Biology values the perspectives of individuals from all backgrounds reflecting the diversity of our students. We broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political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

And, this brings us to the goals of our course...

1. To provide you with the core principles of cell and developmental biology.

The lecture and the book will introduce you to the fields of cell biology and developmental biology. After this class, you will have a basic understanding of cell and developmental biology and will be equipped to build upon this content with upper level courses in biology.

Amended Bloom’s Taxonomy: developed as a method of classifying educational goals for student performance evaluation. You should think about this as you study for exams and ask yourself, am I using different kinds of thinking?



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

To the right you can see the “Amended Bloom’s Taxonomy” pyramid. It was developed as a method of classifying educational goals for student performance evaluation. You should be well –equipped at remembering facts and content with good study habits. We are looking for you to apply and analyze. You are UNC students, we KNOW you can memorize! Move beyond this level of thinking. How can we achieve this? We will have in-class questions to practice this immediately and you will have homework problems to practice on your own. We will also explore classic experiments as a way of thinking through the logic of experiments and to see where the foundations of this content come from. While these may be new ways of thinking for you, practice is the most important way to gain these skills. FYI: UNC’s medical school sees this is an excellent pre-req course for medical school because it teaches students to think.

3. This course should excite you about cell and developmental biology and its applications to our real lives!

**TESTS:** There will be three tests and a final exam given during the semester.

The format will include both multiple choice and open-ended questions. These are not cumulative tests and will only cover the material specified on the course schedule. However, each part of the course builds on the knowledge from earlier sections, so do not “mentally erase” fundamental concepts from earlier in the semester. For all exams, you will need your PID number as identification on your exam sheet. Additionally, you may be asked to verify your identity, so it is required that you bring your one-card to each exam. Failure to produce a one-card or other picture ID if asked may result in a zero on that exam. Test material to study: guided readings, outlines, homework, lecture notes and activities, recitation assignments, and power point slides. Therefore, to succeed in this class, it behooves you to take each reading/homework seriously and actively engage in all class discussions. There is no option to drop a test grade and there are no extra credit options. Exams must be taken on the dates indicated during the regular class period; no makeup exams except in special circumstances, i.e., medical or family emergency documented in writing prior to missing the exam. The instructors reserve the right to give oral make-up exams. If you still do not understand content after your exam has been graded and would like to discuss concepts, we encourage you to meet with your TA or instructor. If you have a question related to points deserved, you must put it in writing no more than 5 days after an exam has been returned to you and turn it in to your instructor.

**HOW IS YOUR GRADE DETERMINED?** (Note: there will be no changes to HOW your final average is calculated at the end of the semester and THERE IS NO EXTRA CREDIT...so please don't ask! You will get the grade you EARN!) Your final average is calculated:

Total for the semester =

$$(0.2125 \times \text{test}) + (0.2125 \times \text{test}) + (0.2125 \times \text{test}) + (0.2125 \times \text{final exam}) + (0.07 \text{ quizzes}) + (0.03 \times \text{participation score}) + (.05 \times \text{recitation})$$

**HONOR CODE:** *All work done in this class must be carried out within the letter and spirit of the UNC Honor Code. You must sign a pledge on all graded work certifying that no unauthorized assistance has been given or received. You are expected to maintain the confidentiality of examinations by divulging no information about any examination to a student who has not yet taken that exam. 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 questions about how the Honor Code pertains to this course.*

#### 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.

### Schedule (1<sup>st</sup> half)

<b>Date</b>	<b>Lecture #</b>	<b>Assignments to be completed BEFORE this class</b>	<b>Topics covered</b>
<b>1/8</b>	1	Read Chapter 1 for an introduction to the course. Smartwork5 Pre-lecture assignment on Chapter 1 due at 9AM.	Introduction to Cell Biology
<b>1/13</b>	2	Complete GRQ1. Smartwork5 Pre-lecture assignment on Chapter 4 due at 9AM.	Protein structure and function
Week 1: NO RECITATION			
<b>1/15</b>	3	Complete GRQ2. Smartwork5 Pre-lecture assignment on How we study proteins due at 9AM.	How we study proteins – Methods and Tools
<b>1/22</b>	4	Complete GRQ3 and GRQ4. Smartwork5 Pre-lecture assignment on Chapters 11 and 12 due at 9AM.	Membrane structure, function, and transport
Week 2 RECITATION: Read “Production of unique immunotoxin cancer therapeutics in algal chloroplasts” and complete the pre-recitation assignment on methods utilized in this paper. Bring the pre-recitation assignment COMPLETED to recitation. In addition, print “Handout 1” and bring a copy to recitation. You will work through the Handout in recitation.			
<b>1/27</b>	5	N/A	Membrane transport continued.
<b>1/29</b>	6	Complete GRQ5. Smartwork5 Pre-lecture assignment on Chapter 15 due at 9AM.	Targeting and trafficking
Week 3 RECITATION Bring the “Figure facts template” to recitation. You will complete this IN recitation.			
<b>2/3</b>	7	Review	Catch up and review
<b>2/5</b>		EXAM 1	
Week 4: NO RECITATION			
<b>2/10</b>	8	Complete GRQ6. Smartwork5 Pre-lecture assignment on Chapter 16 due at 9AM.	Cell communication
<b>2/12</b>	9	Complete GRQ7.	Cytoskeleton

		Smartwork5 Pre-lecture assignment on Chapter 17 due at 9AM.	
Week 5 RECITATION Complete the figure analysis questions for your assigned expert group. See Sakai for expert group assignments.			
<b>2/17</b>	10	Complete GRQ8. Smartwork5 Pre-lecture assignment on Chapter 18 due at 9AM.	Cell cycle
<b>2/19</b>	11		Wrap up
Week 6 RECITATION: Figure presentations and paper summaries. Come prepared to present your assigned figure.			
<b>2/24</b>		EXAM 2	

### Schedule (2<sup>nd</sup> half)

<b>2/26</b>	1	Intro to Developmental Biology assignment TBA	Intro to Dev Bio
Week 1: Recitation assignments TBA on updated syllabus in March.			
<b>3/2</b>	2	Fertilization and early embryogenesis assignment TBA	Fertilization and early embryogenesis—growth
<b>3/4</b>	3	Early embryogenesis—patterning assignment TBA	Early embryogenesis—patterning
<b>3/6-3/15 SPRING BREAK</b>			
<b>3/16</b>	4	Gene expression and differentiation assignment TBA	Gene expression and differentiation
<b>3/18</b>	5	Gastrulation—differentiation assignment TBA	Gastrulation—differentiation
Week 3 RECITATION			
<b>3/23</b>	6	Gastrulation—morphogenesis assignment TBA	Gastrulation—morphogenesis
<b>3/25</b>		Review/Catch up	
Week 4 RECITATION			
<b>3/30</b>		Dev Bio Exam 1	

<b>4/1</b>	7	Formation of the nervous system including neural crest/sensory structures assignment TBA	Formation of the nervous system including neural crest/sensory structures
Week 5 RECITATION			
<b>4/6</b>	8	Evolution of development assignment TBA	Evo-devo
<b>4/8</b>	9	Organogenesis and gene regulatory networks assignment TBA	Organogenesis and gene regulatory networks
Week 6 RECITATION			
<b>4/13</b>	10	Organogenesis and signaling gradients assignment TBA	Organogenesis and signaling gradients
<b>4/15</b>	11	Cancer assignment TBA	Cancer
Week 7 RECITATION			
<b>4/20</b>	12	Stem cells in aging, regeneration, and disease assignment TBA	Stem cells
<b>4/22</b>		Review with TAs and SIs Dr. G at TAGC Meeting	Catch up and review
<b>4/27</b>	STUDY	STUDY	STUDY
<b>4/29</b>	REVIEW	Dr. Gordon will be available for review, regular class time and room	REVIEW
<b>5/4 4:00PM</b>	FINAL	<b>FINAL EXAM—NOT CUMULATIVE, 4:00 PM</b>	Lectures 7-12