

# Fundamental Concepts of Modern Biology

**BILD 10**

**Winter 2020**

**Instructor** Cindy Gustafson-Brown (Dr. Gus)  
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Phone: 534-4242  
email: [cgb@ucsd.edu](mailto:cgb@ucsd.edu) (Put **BILD 10** in the subject line!)  
**office hours:** Thurs, 3:30-4:30 in HSS 1145L (no office hours during week 1)

Please present your questions about course material in person during office hours, not by email. I cannot guarantee an answer to your email, unless it is an urgent issue.

## **Course description**

An introduction to the biochemistry and genetics of cells and organisms; illustrations are drawn from microbiology and human biology. This course is designed for non-biology students and does not satisfy a lower-division requirement for any biology major. Open to non-biology majors only.

## **Textbook**

*Biology, Today and Tomorrow, 5<sup>th</sup> edition*, (2016) by Starr, Evers, and Starr, plus the *MindTap* online homework program.

Weekly textbook reading is required in this course. Frequent homework assignments, found on the accompanying *MindTap* web site, will assess your understanding of the reading. Further, reading prior to lecture provides a foundation for discussion and activities in lecture. It will be difficult to pass the course without doing the reading.

Your digital course materials (eText plus MindTap homework program) are provided by the UC San Diego Bookstore through Canvas and are free for the first two weeks of classes. After two weeks, your student account will be charged a special reduced price *unless you opt out*. If you decide to opt out you must complete the process by **Saturday, January 18th 2020** and you will be responsible for sourcing the materials elsewhere.

Information about UCSD Inclusive Access Program is at <https://ucsandiegobookstore.com/t-inclusiveaccess.aspx>

For any questions about billing please contact [textbooks@ucsd.edu](mailto:textbooks@ucsd.edu)

RedShelf customer support is here:

<https://solve.redshelf.com/hc/en-us/categories/115000384354-Student-Customer-Support>

To opt out:

- Click the RedShelf link in Canvas
- Click View Course Materials
- Scroll down to the gray opt-out button and follow the prompts

### **IA office hours** (starting week 2)

time	location	IA
Tue 11-12:20 AM	Sun God Lounge	Tammy Do
Wed 11:30A-12:30P	Muir Woods Coffee House	Ellis Zhang
Wed 1-2 PM	Sun God Lounge	Kay Chung
Wed 2:30-3:30 PM	Mandeville coffee cart	Jeffrey Chiu
Wed 2:30-3:30 PM	the table in front of Peterson Hall	Samuel Song
Thur 11-12:20 AM	Sun God Lounge	Tammy Do
Fri 9-9:50 AM	Audrey's Café	Cinny Ma
Fri 12-1 PM	HSS 1145L	Casey Cheng

You may attend the office hours of any IA. *There will not be IA office hours the first week.*

### **Discussion sections**

Each section meets once per week. In section you may review the lecture material and/or discuss the readings. You will earn course credit for participating in discussion sections. *Sections will begin on Tues, Jan 14.*

	time	location	IA	email
A01	Tu 2-2:50 P	WLH 2114	Jeffrey Chiu	jhc103@ucsd.edu
A02	Tu 3-3:50 P	WLH 2114	Tammy Do	tad006@ucsd.edu
A03	Tu 4-4:50 P	WLH 2114	Ellis Zhang	ejz004@ucsd.edu
A04	Tu 5-5:50 P	WLH 2114	Jeffrey Chiu	jhc103@ucsd.edu
A05	We 5-5:50 P	York 3000A	Casey Cheng	c2cheng@ucsd.edu
A06	We 6-6:50 P	York 3000A	Sam Song	mys003@ucsd.edu
A07	We 2-2:50 P	WLH 2114	Kay Chung	kbchung@ucsd.edu
A08	We 3-3:50 P	WLH 2114	Cinny Ma	xim066@ucsd.edu

### **Podcast**

This course will be podcast.

### **Classroom etiquette**

Because this is a large lecture class, minimizing distractions is important. Please have respect for your classmates and the instructor by silencing cell phones and other electronic devices, not talking, and minimizing other distracting activities in class.

### **Films**

There are three required films, each one hour long. You will be responsible for watching them on your own time. All three are available for viewing online, streaming from the publisher's web site or from UCSD library reserves. See the course web site for links. When using UCSD library reserves, you *must* access the films from within the UDSD protected network or use a VPN if you are off campus.

#### **Supplements and Safety (2016)**

<http://www.pbs.org/video/2365646371/>

An investigation into the hidden dangers of vitamins and supplements, a multibillion-dollar industry with limited FDA oversight. FRONTLINE, The New York Times and the Canadian Broadcasting Corporation examine the marketing and regulation of supplements, and cases of contamination and serious health problems.

***This film will be covered on midterm 1.***

### **Hunting the Nightmare Bacteria** (2013)

<http://www.pbs.org/wgbh/frontline/film/hunting-the-nightmare-bacteria/>

Has the age of antibiotics come to an end? From a young girl thrust onto life support in Arizona to an uncontrollable outbreak at one of the nation's most prestigious hospitals, FRONTLINE investigates the alarming rise of a deadly type of bacteria that our modern antibiotics can't stop.

*This film will be covered on midterm 2.*

### **Vaccines, Calling the Shots** (2014)

<https://www.pbs.org/wgbh/nova/video/vaccinescalling-the-shots/>

Diseases that were largely eradicated in the United States a generation ago—whooping cough, measles, mumps—are returning, in part because nervous parents are skipping their children's shots. NOVA's "Vaccines—Calling the Shots" takes viewers around the world to track epidemics, explore the science behind vaccinations, hear from parents wrestling with vaccine-related questions, and shed light on the risks of opting out.

*This video will be covered on the final exam.*

How to study the films: The midterms and final exam will test you on material from the films. You should take notes when you watch them, and review your notes before the exams. Do NOT worry about exact dates, numbers statistics, or names of characters in the films. Instead, focus on the stories, history (major events and general time frame), arguments of different stake-holders, policy issues, causes of controversies, impact of the situations described on individuals and society, appropriate and inappropriate responses, biological bases for understanding the situations, etc. For each part, or chapter, of the film you should be able to say something intelligent about what the message was. *Do NOT wait to the last minute to watch the films, in case there is a technical glitch.*

### **Exams**

Note that the exams are in the evening, outside of normal lecture time! Put this on your calendar.

Exams will be closed-notes/closed-book, primarily short answer with a few true/false, multiple choice, and short essay questions. You will be accountable for **all material covered in lecture, PowerPoint slides, assigned material in MindTap, and all required reading.**

There will also be exam questions pertaining to the **required films.**

The final exam will be comprehensive, with emphasis on the last part of the course. The final exam will not cover films from the midterms.

*BRING STUDENT ID.* It will be checked at the exam.

You must write in nonerasable pen and avoid using white-out on the midterm in order to be considered for a regrade. Your handwriting must be legible; we will disregard answers which cannot be deciphered.

**Old exams** are posted on the course web site. We are now using a different textbook, and the material may not be exactly the same or covered in the same order, and the exam lengths differ. Use these exams to become familiar with my style of exams, but don't assume the material is exactly the same. They are not meant to be review sheets.

The IAs will conduct a **review session** before each exam:

First review session	Tues, Jan 28, during regular lecture time
Second review session	Thurs, Feb 20, during regular lecture time
Final review session	Fri, March 13, 8-9:30 PM

Graded midterms will be available in the hallway of HSS 1145 (if you sign the waiver). Note that the external doors are locked after business hours. Graded final exams may be viewed by appointment with Dr. Gus, but may not be taken home.

### **Missed exams**

There are NO alternate exams. Make sure your class schedule has NO exam conflicts, including the final exam! If you know in advance you must miss an exam due to an unavoidable situation (e.g. surgery), it is your responsibility to clear it with Dr. Gus as soon as the conflict becomes apparent. If a spontaneous emergency (e.g. serious illness or accident) arises, you **must contact the instructor within 24 hours** of the missed exam to determine if you are eligible for a make-up exam. You will be required to provide documentation, without which there will not be a make-up, and you will receive a zero for that exam. Do not ask to reschedule an exam for any reason other than a *dire emergency*. Make-up exams are decided case-by-case. The format *may* be an oral or essay exam.

### **iClickers**

You may start earning points by answering iClicker questions on **Thurs, Jan 9**, in lecture.

Your iClicker **MUST** be **registered on Canvas** in order for your responses to be assigned to you.

Points available:

45 points for participation  
15 points for accurate answers  
60 points total = 6% of your grade.

### **iClicker Participation Points** (45 points)

In order to receive these points each day, you must respond to 80% of the questions in that lecture. It does NOT matter if your answer is correct.

There are different numbers of questions each day, so you may use the table below to determine how many times you must respond for participation credit a given day.

total questions	7	6	5	4	3	2	1
required responses	6	5	4	4	3	2	1

#### **Q. How many days will we have clicker questions?**

Probably ~17 days.

#### **Q. How do I get the participation points each day?**

You must answer 80% of the questions posed that day. The number of questions will vary from lecture to lecture.

**Q. How many days will I have to be present to qualify for full participation points?**

You get two free absences without penalty. Full credit will be allocated if you click in every day except two.

**Q. If my battery fails, or I forget my clicker, but I do attend the class, do I get participation for that day?**

No. You are allowed 2 “free” absences – so you don’t have to ask me about making up the missed days. We don’t have to negotiate credit; you can still get all 45 participation points from the remaining days attended.

**Q. If I only attend a few lectures, will I get any participation points?**

Yes, you can still get points each day if you answer 80% of the questions that day.

**iClicker Accuracy Points** (15 points)

You may receive additional credit for answering questions correctly.

There are different numbers of questions during each lecture. Every question is graded individually, even if it is a repeated question (e.g. asked before and after group discussion). The total number of questions over the quarter is unpredictable, and will only be known when the quarter ends.

If you correctly answer 70% of the total questions in a quarter, you will receive the full 15 points possible for accuracy.

Here is a hypothetical example: IF there are 100 questions total in a quarter, you must answer 70 questions correctly to receive the maximum credit of 15 points. In that case, you will receive  $15 \text{ pt}/70 \text{ Q} = 0.214$  points per question up to a maximum of 15 points.

This is NOT all or nothing. You get credit for as many as you answer correctly, up to 15 points.

**Q. If my battery fails, or I forget my clicker, but I do attend the class, do I get accuracy points for that day?**

No. Over the course of the quarter, you only need to get 70% of the total questions correct in order to get full credit. Please do not ask about making up missed days. We don’t have to negotiate credit; you can still get all 15 points from the remaining days attended.

**Additional iClicker information**

**Q. Where can I get an iClicker?**

You can get one at the UCSD bookstore.

**Q. Can I share a clicker with another student?**

No! If you are found to be using another student’s clicker, or if another student is using your clicker, you will both receive a failing grade in the class, and will be referred to the Office of Academic Integrity for administrative discipline.

**Q. Will the clicker results be posted on Canvas?**

No. You may keep track of your own results each day. The clicker questions are posted at the end of each day on Canvas, with the lecture slides. The answers to the questions are revealed in class.

### **Q. What is my best strategy for getting all the points?**

Do your reading in advance, show up for as many lectures as possible, stay awake, and PARTICIPATE!

### **Course grade**

This course will be graded on a curve. The class mean will be a B. There will be pluses & minuses. There will be 1000 points total during the quarter.

iClickers	6%	Midterm 1	17%
Section participation	5%	Midterm 2	17%
Homework (MindTap)	17%	Final exam	38%

### **Academic integrity**

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Cheating will not be tolerated, and I may fail any student caught engaging in academic dishonesty. All exams will be closed-book and closed-notes, so all personal materials must be stowed under your seat. Only exams written in nonerasable pen will be considered for regrades. Exams will be photocopied for comparison with submitted regrades. Because all exams are required for satisfactory completion of this course, any student caught cheating on an exam may receive a failing grade for the course. He/she may also be suspended from UCSD.

### **How can I succeed in BICD 10?**

1. **Read** the assigned pages before lecture. You will understand the lectures better and learn more. You will also get more clicker points toward your grade! The lecture will be related to the assigned reading, but may expand on the topic. Nevertheless, you are accountable for all reading. It will be covered on the exams.

**Keep up with the reading.** Pace yourself with the reading schedule. If you bump into material that is too technically challenging, *don't get bogged down*. Skip it (temporarily). Return to the most difficult material later.

2. **Outline** the important points as you read. This will help you remember the flow of information and contextualize the details. You will not remember all the reading unless you take notes. Use index cards, or a notebook, to summarize the important points.
3. **Look up words** you don't understand in the textbook glossary, a dictionary, or online.
4. **Come** to class and sit toward the front.
5. **Listen** to the podcast.
6. **Review** your notes within 24 hours of the lecture.

Even more effective: rewrite (outline) your notes within 24 hour of the lecture.

There may be material presented in lecture that is not in the textbook. You are accountable for all lecture material.

7. **Review** the PowerPoint slides with your lecture notes. PowerPoint slides will NOT contain the instructor's notes. They will contain announcements, illustrations, graphs, diagrams, and photos which augment the lecture. They will be posted after each lecture. You are accountable for everything in the PowerPoint slides.

8. **Study** a little bit every day, or a few times per week. Repetition over time is the key to retaining information. Your goal is to establish new neural pathways in your memory and fire them often! Cramming does not accomplish this.
9. **Study** with other students, and choose those who are serious about academics. Make up questions and quiz each other. Anticipate potential exam questions. This is a strategy that has been demonstrated to increase student learning.
10. **Take notes** during the films. If you have time, you may watch a film twice! Do not wait until the last minute.
11. **Go** to your discussion section. There will be opportunities to review the material and ask questions. There will also be practice exam questions, so you can assess your progress.
12. **Go** to the office hours of the IAs and the instructor. Office hours are a time to ask questions, or just ask for help or advice. It is also a time for you and your instructor or IA to get to know one another in an informal setting.
13. **Go** to the review sessions.
14. Utilize **study aids** provided
  - a. on the course web site (Canvas)
  - b. at the end of each chapter of the textbook (or eText)
  - c. through the online MindTap program

If you have a hard copy of the book, the answers to question are found at the back of the book.

15. If you are having personal difficulties, do not hesitate to seek help at Counseling and Psychological Services. They can help you get over many types of hurdles.  
<http://caps.ucsd.edu/>

Their self-help library of resources covers many relevant topics, and can be accessed at <http://caps.ucsd.edu/selfhelp.html>

### **Students with disabilities**

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters **well in advance**, to the following persons so that accommodations may be arranged.

- the course instructor
- the OSD Liaison in the department

Contact the OSD for further information: 858.534.4382 (phone)  
[osd@ucsd.edu](mailto:osd@ucsd.edu) (email)  
<http://disabilities.ucsd.edu> (website)

**Lecture/reading schedule on next page →**

## Tentative Class Schedule

Each chapter has a section titled “Digging into the data.” You are not required to read these sections.

Date	Session	Topics	Required reading PRIOR to lecture	pages
Tues, Jan 7	1	Introduction; What is alive?		
Thur, Jan 9	2	How is science done?	1.1-1.4, 3.6	9
Tues, Jan 14	3	How is science done?	1.5-1.6	8
Thurs, Jan 16	4	Molecules of life	2.1, 2.6-2.10	10
Tues, Jan 21	5	Cell structure	3.1-3.3 (Also complete Critical Thinking Case – Cheese)	6
Thur, Jan 23	6	Cell structure	3.4-3.5	7
Tues, Jan 28	7	<b>MIDTERM 1 (8-10 PM)</b>	Review session in lecture	
Thurs, Jan 30	8	Energy & Metabolism	4.2-4.4	8
Tues, Feb 4	9	Energy & Metabolism	4.5-4.6, 5.7	7
Thur, Feb 6	10	DNA	6.1-6.3	7
Tues, Feb 11	11	DNA, Genes	6.4, 7.1-7.4	7
Thurs, Feb 13	12	Genes	7.5	3
Tues, Feb 18	13	Genes	7.6-7.7	6
Thur, Feb 20	14	<b>MIDTERM 2 (8-10 PM)</b>	Review session in lecture	
Tues, Feb 25	15	Cell division	8.1-8.2	5
Thurs, Feb 27	16	Cell division	8.3-8.4	5
Tues, Mar 3	17	Inheritance	9.1-9.3	6
Thur, Mar 5	18	Inheritance	9.6-9.8	8
Tues, Mar 10	19	Biotechnology	10.1, 10.4-10.5	6
Thurs, Mar 12	20	Vaccines	22.1, 22.7 (Also complete Critical Thinking Case – Genetics)	2
Tues, Mar 17	--	<b>FINAL EXAM (11:30A – 2:30PM)</b>		

Readings in *Biology, Today and Tomorrow, 5<sup>th</sup> edition*, (2016) by Starr, Evers, and Starr

On average there are 6.5 pages of reading per lecture,

Over the course of the ten weeks, there are on average 11 pages of reading per week.