Welcome!

Course description
This is an upper division course on structure and function of a eukaryotic cell. Lectures will cover: methods of cell biology research, membrane structure and dynamics, protein synthesis and sorting, cytoskeleton structure and dynamics, cell cycle and cell death, cells in development and disease. Prerequisites: BIBC 100 or BIBC 102.

Time and Place:
Tues/Thurs 2:00 – 3:20p, Center 119

Instructor:
Emily Grossman, PhD
H&SS 1145C
egrossma@ucsd.edu

Office Hours
Thursdays 3:30 – 5p
H&SS 1145L

Learning Goals
At the end of this course, students will be able to:
- Summarize techniques used to study cells and cell processes, and explain applications of the methods to real life
- Explain how proteins are transported and targeted to different cellular locations
- Discuss the structure and function of each cell organelle or cytoskeletal element
- Explain the stages of the cell cycle, and how misregulation can lead to cancer developing

Instructional Assistants
Rose Malinow ramalino@ucsd.edu
Sruti Malay smalay@ucsd.edu
Phuong Mai p4mai@ucsd.edu
Yohandra Sauceda ysauceda@ucsd.edu
Kristen Thorne kthorne@ucsd.edu
Discussion sections:
Sections will start Week 1. Problem sets will be discussed during sections, and the material covered in the sections is required and will be tested on exams.

Class Web Site:
The class web site is on TritonEd (https://tritoned.ucsd.edu/). All class notices, the syllabus, and other important information will be posted here. Please check the web site regularly for updates, since this will be the main form of distribution of information to the class. My lecture notes will be posted to the site.

Resources
1. Support for student writers:
Writing + Critical Expression Hub (part of the Teaching + Learning Commons)
There are undergraduate writing mentors on staff who are in Biological Sciences degree programs, so they have training not only in working with student writers, but also familiarity with science reasoning and science writing. Please don’t hesitate to meet with a writing mentor for help—every writer can benefit from these conversations. Students can make appointments via https://ucsd.mywconline.com

2. Tutoring
OASIS: Office of Academic Support and Instructional Services
From the OASIS website (https://students.ucsd.edu/sponsor/oasis/): We are the learning center at UC San Diego and provide most of the free tutoring on campus in a collaborative, supportive environment. All UC San Diego students are eligible to receive OASIS services. Each year, OASIS serves 3,000 students in language, math, science, study skills, and writing as well as peer counseling and peer mentoring.

They are located on the third floor of Center Hall, (858) 534-3760 (phone), oasis@ucsd.edu (email)

Required Learning Materials:
iClicker (available at bookstore)

Optional Learning Materials:
Molecular Cell Biology (Lodish et al., 8th edition)
The book is highly recommended, but not mandatory. If you wish to use previous editions of the book just keep in mind that the assigned reading page numbers given may not exactly correspond. You will have to determine the material referenced.

<table>
<thead>
<tr>
<th>Day/Time</th>
<th>Room</th>
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<tbody>
<tr>
<td>Wednesday 8 – 8:50a</td>
<td>Center 217A</td>
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<td>Wednesday 9 – 9:50a</td>
<td>Center 217A</td>
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<td>Wednesday 10 – 10:50a</td>
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<td>Friday 1 – 1:50p</td>
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<td>Friday 2 – 2:50p</td>
<td>Center 217A</td>
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<tr>
<td>Friday 3 – 3:50p</td>
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Basis for Final Grade
25 points iClicker questions (5%)
25 points Discussion section participation (5%)
125 points Problem sets (25%)
150 points Midterm (30%)
175 points Final (35%)
500 points total

Grading scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>98.0 – 100%</td>
<td>A+</td>
</tr>
<tr>
<td>92.0 – 97.9%</td>
<td>A</td>
</tr>
<tr>
<td>90.0 – 91.9%</td>
<td>A-</td>
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<tr>
<td>88.0 – 89.9%</td>
<td>B+</td>
</tr>
<tr>
<td>82.0 – 87.9%</td>
<td>B</td>
</tr>
<tr>
<td>80.0 – 81.9%</td>
<td>B-</td>
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<tr>
<td>78.0 – 79.9%</td>
<td>C+</td>
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<tr>
<td>72.0 – 77.9%</td>
<td>C</td>
</tr>
<tr>
<td>70.0 – 71.9%</td>
<td>C-</td>
</tr>
<tr>
<td>60.0 – 69.9%</td>
<td>D</td>
</tr>
<tr>
<td>0.0 – 59.9%</td>
<td>F</td>
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Due to the generous amount of extra credit opportunities, I do not round final scores.

Clicker participation (not for correctness), 5%
If you answer at least 85% of the clicker questions during the lecture sessions, you will get full points. Because you only need 85% participation for full points, if you forget your clicker one day do not worry about it.
For participation below 85%, the breakdown is as follows:
- 75% – 84.9%: 20pts
- 65% - 74.9%: 17pts
- 50% - 64.9%: 13pts
- 25% - 49.9%: 5pts
- Below 25%: 0pts

Accommodations: 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 to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the Department of Biological Sciences in advance so that accommodations may be arranged.

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

Whenever possible, we will use universal designs that are inclusive. If you have feedback on how to make the class more accessible and inclusive, please let me know!
**A Culture of Respect:** The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. Students have the right to an educational environment that is free from harassment and discrimination.

Students have options for reporting incidents of sexual violence and sexual harassment. Sexual violence includes sexual assault, dating violence, domestic violence, and stalking. Information about reporting options may be obtained at OPHD at (858) 534-8298, ophd@ucsd.edu, or http://ophd.ucsd.edu. Students may receive confidential assistance at the Sexual Assault Resource Center at (858) 534-5793, sarc@ucsd.edu, or http://care.ucsd.edu, or through Counseling and Psychological Services (CAPS) at (858) 534-3755 or http://caps.ucsd.edu.

Students may feel more comfortable discussing their particular concern with a trusted employee. This may be a UCSD student affairs staff member, a department Chair, a faculty member or other University official. These individuals have an obligation to report incidents of sexual violence and sexual harassment to OPHD. This does not necessarily mean that a formal complaint will be filed.

If you find yourself in an uncomfortable situation, ask for help. UCSD is committed to upholding policies regarding nondiscrimination, sexual violence and sexual harassment.

**Student Expectations**

**Attendance Policy**

You must attend the discussion section you are enrolled in. Attendance at discussion sections is mandatory. However, I understand circumstances out of your control occasionally occur, so you can miss one discussion section and still earn full participation credit. Problem sets can be turned into your IA via email if you miss your scheduled section.

**Exam policies:**

Both the midterm and final will be scantron-based exams. Missing a scheduled exam will only be excused for medical reasons where documentation can be provided. A make up exam will be scheduled within one week of the original exam.

**Problem sets:**

Weekly problem sets will be due at the end of your discussion section each week. Although we encourage you to work together on problem sets, your answers must be written in your own words. If you do choose to work in groups on the problem sets, please list the names of your collaborators on your assignment. Each student must write her/his own answers, in his/her own words, after working with the group. Try not to make the mistake of simply accepting another student's answer and thinking you understand it. You will gain a better understanding by going through the problem-solving process.
Academic Integrity:

We hold the following values (adapted from the International Center for Academic Integrity) as important to academic integrity and for maintaining an inclusive classroom environment.

<table>
<thead>
<tr>
<th></th>
<th>As students, this means you will...</th>
<th>As the Instructional team, this means we will...</th>
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<tbody>
<tr>
<td>Honesty</td>
<td>➢ Honestly demonstrate your knowledge and abilities</td>
<td>➢ Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams</td>
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<td></td>
<td>➢ Communicate openly without using deception, including citing sources appropriately</td>
<td>➢ Communicate openly and honestly about the expectations and standards of the course through the syllabus and guidelines for course assignments</td>
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<tr>
<td>Responsibilities</td>
<td>➢ Complete your assignments on time and be fully prepared for class</td>
<td>➢ Give you timely feedback on your assessments</td>
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<td></td>
<td>➢ Arrive to class on time and be active participants</td>
<td>➢ Arrive to class on time and be active participants</td>
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<td></td>
<td>➢ Create relevant assessments and class activities</td>
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<tr>
<td>Respect</td>
<td>➢ Speak openly with others while honoring diverse viewpoints and perspectives</td>
<td>➢ Respect your perspective even while we challenge you to think more deeply and critically</td>
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<tr>
<td></td>
<td>➢ Allow others to voice their opinions and perspectives</td>
<td>➢ Help facilitate the respectful exchange of ideas in class</td>
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<tr>
<td>Fairness</td>
<td>➢ Contribute fully and equally when working in teams</td>
<td>➢ Create fair assessments and grade in a fair and timely manner</td>
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<td></td>
<td>➢ Not seek unfair advantage over others</td>
<td>➢ Treat students and teams equally</td>
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<tr>
<td>Trustworthy</td>
<td>➢ Not engage in personal affairs while on class time</td>
<td>➢ Be available when we say we will be</td>
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<td></td>
<td>➢ Be open and transparent about what you are doing in class</td>
<td>➢ Follow through on our promises</td>
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<td></td>
<td>➢ Not distribute course materials to others in an unauthorized fashion</td>
<td>➢ Not modify the expectations or standards without communicating with everyone</td>
</tr>
<tr>
<td>Courage</td>
<td>➢ Say or do something when you see actions that undermine any of the above values</td>
<td>➢ Say or do something when we see actions that undermine any of the above values</td>
</tr>
</tbody>
</table>

This class statement and table of values is adapted from Dr. Tricia Bertram Gallant.
Although we encourage students to work together on problem sets and during discussion sections, the following is not allowed.

- Copying another student’s work on the problem sets or exams, or allowing another student to copy your work
- Plagiarizing (copying) the answers to your problem sets from another source (lecture slide, book, online, etc). They need to be written in your own words
- Altering graded exams or assignments and submitting them for a regrade
- Responding to clicker questions in class using another student’s clicker

Any suspected instances of a breach of academic integrity will be reported to the Academic Integrity Office for review. A breach of academic integrity may result in a zero on the assignment/test/participation item in question and/or a failed grade in the course. The impact of the breach on a grade will be determined by the instructor in consultation with the Academic Integrity Office.

If you observe anyone not acting in accordance with the above values we are trying to foster, please bring your concerns to my or the instructional team’s attention, and we will do our best to determine appropriate actions to uphold and protect these values.

**Course Schedule:** (Sections and page numbers from 7th edition book)

**Lecture 1** (Thurs 9/27): Introduction to Methods, Eukaryotic Cell Organelles
   Recommended Reading: Chapter 9

**Lecture 2** (Tues 10/2): Membrane Structure and Membrane Proteins
   Recommended Reading: Chapter 10

**Lecture 3** (Thurs 10/4): Membrane Transport and Electrical Properties
   Recommended Reading: Chapter 11

**Lecture 4** (Tues 10/9): Secretory Pathway I: ER
   Recommended Reading: p577-584, p587-601, p671-672

**Lecture 5** (Thurs 10/11): Endocytosis and Transport Vesicles
   Recommended Reading: p627-629, p646-648, p654-660, Fig 14-20, Fig 14-22

**Lecture 6** (Tues 10/16): Secretory Pathway II: Golgi
   Recommended Reading: p627-646

**Lecture 7** (Thurs 10/18): Secretory Pathway III: Golgi and Lysosome
   Recommended Reading: p646-652, p601-610, p612-614
Lecture 8 (Tues 10/23): The Nucleus
   Recommended Reading: p365-370, p615-621

Lecture 9 (Thurs 10/25): Signal Transduction I
   Recommended Reading: p323-325, p673-692, p699-713

Lecture 10 (Tues 10/30): Signal Transduction II
   Recommended Reading: p721-747

Thurs 11/1: Midterm (will include material from Lectures 1 - 9)

Lecture 11 (Tues 11/6): Cytoskeleton I: Actin
   Recommended Reading: p773-790, p808-815

Lecture 12 (Thurs 11/8): Cytoskeleton II: Microtubules
   Recommended Reading: p821-833

Lecture 13 (Tues 11/13): Cytoskeleton III: Molecular Motors
   Recommended Reading: p793-800, p833-848

Lecture 14 (Thurs 11/15): Cell Cycle I: Cell Cycle Oscillator
   Recommended Reading: p873-890, p897-898

Lecture 15 (Tues 11/20): Cell Cycle II: Checkpoint Controls
   Recommended Reading: p906-913, p923-924, p892-896

Thurs 11/22: THANKSGIVING NO CLASS

Lecture 16 (Thurs 11/27): Cell Cycle III: Cancer
   Recommended Reading: p1113-1114, p1118-1143

Lecture 17 (Tues 11/29): Extracellular Matrix
   Recommended Reading: p927-950

Lecture 18 (Tues 12/4): Development and Stem Cells
   Recommended Reading: p979-994

Lecture 19 (Thurs 12/6): Review for Final

Final (Thurs 12/13): 3:00 – 6:00p Location TBA

Important Dates to Remember
Drop Deadline (without W):       Friday, Oct 26, 2018
Mid – Term Examination:           Thursday, Nov 1, 2018
Withdrawal Deadline:              Friday, Nov 9, 2018
Final Examination:                Thursday, Dec 13, 2018
Potentially Useful Resources (listed alphabetically):  

**Black Resource Center**: The Black Resource Center is a Campus Community Center that serves everyone at UC San Diego while emphasizing the Black experience. We promote scholarship, foster leadership, and cultivate community for students through the committed, collaborative effort and support of faculty, staff, and the broader UC San Diego community.  
[http://brc.ucsd.edu/](http://brc.ucsd.edu/) (website)

**Counseling And Psychological Services (CAPS)**: CAPS provides FREE, confidential, psychological counseling and crisis services for registered UCSD students. CAPS also provides a variety of groups, workshops, and drop-in forums.  
[http://caps.ucsd.edu/](http://caps.ucsd.edu/) (website)

**Cross-Cultural Center**: The Cross-Cultural Center strives for meaningful dialogues and context across all cultures, particularly those of underrepresented or underprivileged backgrounds. We offer supportive and educational services through art, social and educational programs, workshops, and outreach. We welcome creative venues for enhancing social consciousness and equity.  
[http://ccc.ucsd.edu/](http://ccc.ucsd.edu/) (website)

**LGBT Resource Center**: The Lesbian Gay Bisexual Transgender Resource Center at UC San Diego provides a visible presence on campus and enhances a sense of connection and community among LGBT faculty, staff, students, alumni and the UC San Diego Community.  
[http://lgbt.ucsd.edu/](http://lgbt.ucsd.edu/) (website)

**Office for Students with Disabilities (OSD)**: The Office for Students with Disabilities (OSD) at UC San Diego works with undergraduate, graduate, and professional school students with documented disabilities, reviewing documentation and determining reasonable accommodations.  
[https://disabilities.ucsd.edu/about/index.html](https://disabilities.ucsd.edu/about/index.html) (website)

**Raza Resource Centro**: The Raza Resource Centro team is committed to our students' success and we work collectively to meet the needs of our students. The Centro is a lively space where students study, meet, write, get tutoring, and most importantly are in community. It is a space where Latina/o Chicana/o organizations hold meetings, events and where culture, arte, and academics interconnect.  
[http://raza.ucsd.edu/](http://raza.ucsd.edu/) (website)

**Student Veterans Resource Center**: The Student Veterans Resource Center (SVRC) is committed to ensuring that military affiliated students successfully make the transition from the military environment to campus life, and are assisted in their progress toward completing their academic degree. The Center also provides opportunities for peer-to-peer support, mentoring and social networking.
Women’s Center: The Women’s Center serves as a resource for the entire campus community while placing the experiences of diverse women at the center through the resources we provide, the programming and learning opportunities we facilitate, and the dynamic community space that we create.

There are many other resources available to you on campus, and if you wish to know more about where you can go for support – please let me know and we can find it together. If you would like me to include resources other than those I have listed above, let me know as well! I want to know what is important for everyone!