

## Cell Biology, Biol 360, University of Victoria Summer 2022

### Welcome!

We acknowledge and respect the lək'wəŋən peoples on whose traditional territory the University of Victoria stands, and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

I am very happy to live on this beautiful land. Let's be thankful to learn together on this land, and strive to make the world a better place.

We welcome everyone to learn in this course and we respect every human being, including all people from all ethnic backgrounds, religious beliefs, sexual orientations, genders, socioeconomic backgrounds and abilities.

We want to welcome parents, and we invite their children to lectures if missing lecture would be the alternative.

### Goals for this course:

I selected interesting and complex topics of cell biology in order to introduce you with major concepts and working techniques of cell biology. At the end of this course you will understand principles of cell organization, intracellular transport, cell communication, signal transduction pathways & cell cycles including apoptosis. Occasionally I include peer reviewed research papers to show you the path from research to textbooks and experiments involved. You will understand experimental set up and be able to interpret figures presenting research results. My main goal is to teach you the scientific way of thinking, how to enjoy learning by engaging with the class and the material.

### With whom do you have to deal with?

*Instructor:* **Dr. Barbara Ehltling** (Course coordinator, lecturer)

*email:* [behlting@uvic.ca](mailto:behlting@uvic.ca)

How to connect with me?

- You can always connect with me via email. My goal is to respond no later than within 24 h on business days.
- Want to meet in person? Just send me an email and we arrange a meeting time (preferred times: Mondays and Thursdays and/or right after class). Office hours are for you to connect with us, discuss lecture material, and for us to get to know each other.
- Want to know about my background? You can find out more on the Brightspace 'Meet your instructor' site!
- Want to introduce yourself? Please go ahead and tell me and the class about you on Brightspace!

### **Intended Learning Outcomes:**

At the end of this course, you will ...

- ... learn about the **most studied cellular processes** in as much detail as is known, including protein localization, cell signaling, cytoskeleton activities, cell cycle regulation, apoptosis, and cancer.
- ... know how to **study cells** including microscopy, intracellular protein localization, isolation of cells and organelles. You will learn a variety of experimental approaches in general, and applied to specific examples over the entire term.
- ... **read and interpret figures** from peer reviewed scientific papers
- ... **collaborate with your peers** in pair discussions, and a group paper project

### **Designated Class time and location:**

Tuesday, Wednesday and Friday at 8.30 am -10.20 pm in Cun146 (Attention: on Wednesday June 22<sup>nd</sup> and Friday June 24<sup>th</sup> we will be in ECS 104!!!). Classes start Tuesday May 10<sup>th</sup> and end Friday June 24<sup>th</sup>.

### **Prerequisites:**

Biol230 OR BME200 and BME201, AND one of Bioc 299, Bioc300A, Bioc300B (Bioc300A or 300B can be taken as corequisites). Please be aware that if you drop a co-req the system will automatically drop you from this course as well!

### **Tentative Class Schedule**

- Welcoming, rules and regulations,
- Introduction to Cell Biology (parts of chapters 1,3, 4, 12, 14)
- Working with cells: visualizing cells and manipulation of cells (chapters 8, 9)
- Membranes (chapter 10)
- Membrane transport of small molecules & the electrical properties of membranes (chapter 11)
- Intracellular Compartments and Protein sorting (chapter 12)
- Intracellular vesicular Traffic (chapter 13)
- Cell communication and signaling pathways in cells (chapter 15)
- Cytoskeleton (chapter 16)
- Cell cycle (chapter 17)
- Apoptosis (chapter 18)
- Cancer (chapter 20)
- Wrap up and catch up, Review, evaluation...

## Textbook:

Molecular Biology of the Cell, 6<sup>th</sup> edition, Alberts B, Johnson, A, Lewis J, Morgan, Raff M, Roberts K, Walter P, Garland Science, ISBN 978-0-8153-4432-2

The book is available to you in various forms:

- the textbook can be purchased at the bookstore: NEW \$273.50, \$183.95 Loose leaf, 180 day licence \$97.95 E-TEXT
- Etext also available via VitalSource.com and at Norton <https://digital.wwnorton.com/mboc6>
- The UVIC library is looking into ebook option.

Lecture notes will be posted on Brightspace (content-> weeks). I recommend that you bring the lecture notes to classes to add comments on slides and answer questions. **Provided lecture slides are for personal use ONLY and are not allowed to be distributed without permission from the publisher.** The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor.

Lectures will be recorded with Echo360 (video files) and/or voice (audio files).

## Evaluation:

- Weekly **quizzes 40%** every **Tuesday** (May 17<sup>th</sup>, 24<sup>th</sup>, 31<sup>st</sup>, June 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>) at **8.30 am - 8.50 am** on Brightspace. **It is your responsibility to log on to complete and submit the quiz on your own electronic device.** I invite you to write in the classroom or at CAL (with an earlier start time). I will start the lecture at 8.50 am. If you have no electronic device, please contact me ASAP.

Each quiz is worth 8%. Only the **five best** quizzes (total of 40%) will be used for your final grade (you have ONE free-bee). You must write at least FOUR quizzes to successfully complete this class. If you miss more than TWO quizzes alternative forms of evaluation might be necessary.

- **Participation polls/mini-quizzes** during lectures: **5% participation** (1% each). There will be participation polls/quizzes on Brightspace on random times during lectures (accessible for 24 h). Please bring your mobile devices to class.

- **Final exam: 43%**, on last day of class, Friday **June 24<sup>th</sup>**, at 8.30 am – 10.20 am, cumulative.

I invite you to **write your own quiz/final exam questions** and send them to me by email (no later than one business day in advance).

Why? Writing good exam questions helps to you to study and engage with the material. I will use the question(s) if they fit!!!

- **Paper assignment: 10%** (completed in groups, student will be put in groups on Brightspace. The paper will be announced in late May, so students have about one week to read it. Questions for the paper assignment will be given early June. The exact deadline will be announced in class no later than end of May.

- **Artistic assignment** (or: the unusual assignment): **2%** participation. Get creative: write a poem with our scientific words used in the class, paint a picture related to our topics, dance your favorite scientific pathway or come up with your own creative idea and relate it to class content. Look for the submission drop box on Brightspace. Can be done anytime but no later than Friday **June 24<sup>th</sup>**.

### **How to be successful**

I strongly encourage you to **attend lectures, listen and take notes**.

It is very important to keep on track and to focus on class material. Especially summer courses are intense and we cover the same material in seven weeks that we usually cover in three months during the fall term. So, staying on top of things is key!

If you have questions, please use the **student – led Q&A forum** on Brightspace: please ask questions and answer questions for other students!

Form **study groups** with your peers: 4-5 students in one group is perfect. Only once you can talk about the material you really understand it.

I want you to know that **off – task activities** like checking email, text messaging, checking social network sites, is **negatively affecting students' grades (your own and your peers next to you) by more than 10% (Sana et al. 2013, Computers and education 62, 24-31)**. I strongly recommend that you **turn off your off – task aps/programs during class time and study time to allow you to focus and not be distracted by social media and other non-course related sites!**

### **Important Dates**

In the UVic calendar you will find a fuller list of important dates, but the ones we have listed below are the ones that will matter to students in Biology 360.

Tuesday May 10<sup>th</sup>: **First lecture** at 8.30 am in Cun146

Tuesday May 17<sup>th</sup>: **Quiz 1** at 8.30 am on Brightspace, lecture at 8.50 am

Friday May 20<sup>th</sup>: **NO in person class**. The material will be posted as pre-recorded lectures on Brightspace

Monday May 23<sup>rd</sup>: Victoria Day, no classes today on campus

Tuesday May 24<sup>th</sup>: **Quiz 2**

Tuesday May 31: **Quiz 3**, fees deadlines

end of May (exact day TBA) you will get the paper for the paper assignment to read

early June (exact day TBA) you will get the questions for the paper assignment, to be answered in groups.

Tuesday June 7<sup>th</sup>: **Quiz 4**

Tuesday June 14<sup>th</sup>: **Quiz 5**

Tuesday June 21<sup>st</sup>: **Quiz 6**

Friday June 24<sup>th</sup>: Last day, **Final exam**

### **Stay healthy!**

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. Mindfulness, meditation and yoga might help you to stay mentally healthy. Avoid last minute study panic by working regularly throughout the term: we recommend that you spend at **least 2-3 hours studying after each lecture!** This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle.

### **Wearing masks in the classroom is strongly recommended.**

If you are not feeling well, stay at home. If you miss class, you will be able to catch up by watching the video/listen to the audio recording of live classes on Brightspace.

If I as instructor have to stay home, I will deliver course content by pre-recorded lectures.

### **General regulations:**

Grading system: In determining final grades for the course, our spreadsheet will round your course score to the nearest whole percent. That is the official course grade that will be submitted for you.

We cannot change your grade for any reason, except if we have made an error calculating it. There is no extra work that you can do to raise your grade.

Failure to complete essential components of this course will result in a grade of “N” regardless of the cumulative percentage on other elements of the course. An N is a failing grade, and it factors into a student’s GPA as 0. The maximum percentage that can accompany an N on a student’s transcript is 49.

Please read the appropriate section of the current UVic Academic Calendar regarding your rights and obligations.

You are expected to **observe UVic academic regulations and standards of scholarly integrity** especially with regards to plagiarism and cheating.

UVic and we as instructors are committed to promoting, providing and protecting a supportive and safe learning and working environment for you and us.

**I hope that you are enjoying a great summer term with Bio360 Cell Biology!**

**UVic support centers:**

If you have any **technical issues** using Zoom or Brightspace, please contact the **computer help desk** via email (helpdesk@uvic.ca)

**Support Connect:** 24/7 help by phone or online

<https://www.uvic.ca/student-wellness/contacts/emergency-contacts/index.php#ipn-supportconnect-24-7-help>

**Student Wellness Centre** to support students' mental, physical and spiritual health

<https://www.uvic.ca/student-wellness/>

**Centre for Accessible Learning** - The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <https://www.uvic.ca/services/cal/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

**Office of Indigenous Academic and Community Engagement (IACE)** has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being. <https://www.uvic.ca/services/indigenous/students/index.php>

**Office of Student life:** student conduct, Student mental health, Sexualized violence awareness,... : <https://www.uvic.ca/services/studentlife/index.php>

UVic services:

**Counselling Services** - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students. Due to covid19 service is now offered by phone <https://www.uvic.ca/services/counselling/>*

**Health Services** - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives. UVic Health has transitioned to offering services almost entirely by telehealth. <http://www.uvic.ca/services/health/>*

**Centre for Accessible Learning** - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <https://www.uvic.ca/services/cal/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

**Elders' Voices** - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.*

<https://www.uvic.ca/services/indigenous/students/programming/elders/index.php>

### **Sexualized Violence Prevention and Response at UVic**

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting [www.uvic.ca/svp](http://www.uvic.ca/svp). If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out: Where: Sexualized violence resource office in EQHR; Sedgewick C119, Phone: [250.721.8021](tel:250.721.8021), Email: [svpcoordinator@uvic.ca](mailto:svpcoordinator@uvic.ca), Web: [www.uvic.ca/svp](http://www.uvic.ca/svp)