

Biotechnology, Biol 401A, University of Victoria Fall 2020

Goals for this course:

This course is designed to give you an understanding of the application of genetic and molecular biological principles to research and industry; it is about the “Tools and Rules” of Biotechnology: dive into the why and how and explore many variations of standard techniques like cloning, PCR, protein expression systems, use of DNA enzymes and sequencing.

We are in contact with local biotechnology companies to organize guest lectures.

With whom do you have to deal with?

Dr. Francis Choy: Professor in the Department of Biology and a member of the Centre for Biomedical Research (CBR).

Phone: 250- 721-7107

E-mail: fchoy@uvic.ca

Office hours: Friday at 3.30 p.m. – 5:00 p.m. Or by appointment.

Expertise is in molecular genetics and enzymology, focusing on the metabolic and molecular bases, and treatments and prevention, of lysosomal storage diseases, specifically Gaucher disease and Sanfilippo syndrome (which result from an inherited deficiency of glucocerebrosidase and N-acetyl glucosaminidase, respectively).

Dr. Barbara Ehltling (course coordinator): Assistant teaching professor in the Department of Biology (half time appointment)

Email: behltling@uvic.ca

Phone: 250 472 4066

Office hours: By appointment on zoom.

I am happy to help you with lecture related questions as much as I can. Please do not hesitate to contact me via email. My goal is to respond no later than within 24 h on business days.

Expertise in molecular biology, cell biology, biotechnology, genetics, genomics, plant molecular biology...

Teaching assistant for the first half of the term: Chloe Lesire, email: clesire@uvic.ca

Online Teaching

Ok, to be honest with you, none of us has actively chosen the form of online teaching/learning. We were all more or less forced into this due to the pandemic. As this is challenging for all of us (everybody has their own personal challenges), we try to make the best out of it: Please be kind to us as instructors as we are still learning the new LMS Brightspace and the way of online teaching (Normally online courses are designed by teams of online-specialists over years). There are most likely some bumps on the road ahead and we welcome your suggestions. We also want to encourage you to look forward and learn as best as you can. Trust me, I know that it can be hard to motivate yourself at home. We try to be as flexible as possible to accommodate the challenges of our so called ‘new normal’. Please contact us if you struggle and need help. We are here to help!

Designated Class time:

Monday, and Thursday 10 am – 11.20 am. Classes start Thursday Sept 10th and end Thursday Dec 3rd. This term the course will be taught online.

For the first half of the term taught by BE you can expect to see recorded lecture slides usually one week ahead of time. Class material will be arranged in **20 - 50 min** lecture packages (roughly 80 min for each lecture depending on the topic sometimes a little less/more min) for each lecture. You can listen to the lecture in one sitting, or you can start and stop as you like. I only expect you to be actually **available in real time biweekly on Thursdays at 10 am – 11.20 am** for online quizzes, Q&A class sessions and maybe other interactions. Other days are flexible.

For the second half of the term taught by FC lectures will be live on Zoom during designated class times. Zoom lecture will be recorded and posted.

How do we connect in this online setup?

1. Brightspace will be used to post recorded lectures, assignments, Q&A discussion, quizzes, announcements and more...

2. Zoom will be used to connect with you **in real time**.

Your guest link for the entire term is

<https://uvic.zoom.us/j/97667253001?pwd=ZfVqa216R1hEWGhPUWx0cWJvcExaQT09>

Meeting **ID**: 976 6725 3001 (valid for entire term)

Meeting **Password**: **UVic** (valid for entire term)

Please log in via **UVic SSO** (single sign on) and you can access the meeting right away without being in the waiting room! If you have privacy issues please contact UVic privacy office.

As it is really **nice to see your faces** we would really appreciate if you would turn on your videos during zoom meetings!!!!

You can participate by writing in the chat and/or raising a hand (in your video or by clicking the hand symbol on the right side after you clicked on ‘participants’).

Orientation session once on Thursday Sept 10th at 10 am: Let's meet on the first day of class for a little introduction. I am looking forward to get to know you all!

Office hours: In order to meet on Zoom individually, please send me an email and we will arrange an appointment.

Class Question & Answer sessions biweekly for the first half of the term on **Thursdays at 10 am** (on Sept 24th, Oct 8th, Oct 22nd): The pre-recorded lectures might not be able to answer all your questions. I therefore invite you to biweekly Q&A sessions on Thursdays at 10 am via Zoom to discuss class material. I can use a white board to draw concepts. If you have questions please send them to me by email a little bit ahead of time. You can also ask questions during those Q&A sessions by raising a hand and/or in the chat (there is also the Q&A forum on Brightspace where you can ask your questions 24/7!). Attending the Question & Answer sessions is **highly recommended**, so **EVERYBODY** please log in.

Tentative Class Schedule

Introduction, Details of cloning	Dr. Ehltng
Sequencing and bioinformatics	Dr. Ehltng
Next generation sequencing	Dr. Ehltng
Biotechnology on industrial level	Dr. Ehltng
Review/ catch up	Dr. Ehltng
Details of cloning, Protein expression systems	Dr. Choy
DNA enzymes	Dr. Choy
Biotechniques	Dr. Choy
Transgenic Animal Model	Dr. Choy
CRISP-Cas9 technology	Dr. Choy's lab: guest lecture
Antibody engineering	Dr. Choy
Stem cell technology	Dr. Choy

Important dates this term Fall 2020

Sept 10 th	<i>Introduction</i> live on Zoom on Thursday at 10 am
Sept 17 th	Mock quiz on Brightspace
Sept 24 th	Live <i>Q&A session</i> on Zoom at 10 am, <i>Quiz 1:</i> at 10.40 am
Sept 25 th	Last day for adding courses:
Oct 8 th	Live <i>Q&A session</i> on Zoom at 10 am, <i>Quiz 2</i> at 10.40 am
Oct 22 nd	Live <i>Q&A session</i> on Zoom at 10 am, <i>Quiz 3</i> at 10.40 am
Oct 31 st	Last day for dropping courses
Nov 16 th	<i>Midterm</i> 10 – 11.20 am
Nov 30 th	Last day to submit to <i>Q&A assignment</i>
Nov 30 th	Last day to submit optional <i>paper assignment</i>

There is no designated textbook for this course, but all lecture slides and recordings will be posted on a Brightspace website. I recommend that you listen to those recordings and take notes, add comments on slides and answer questions.

*All course content and materials (lecture notes and exam/quiz questions) are made available by instructors for educational purposes and for the exclusive use of students registered in their class. 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, except under fair dealing or another exception in the Copyright Act. Sharing lecture slides and quiz questions through note-sharing sites or other means violates the Policy on Academic Integrity.** Violations may result in disciplinary action under the Resolution of Non-Academic Misconduct Allegations policy (AC1300).*

References to scientific papers can be found in the lectures notes and it is your responsibility to find the papers online.

Evaluation:

- **Three quizzes** on Sept 24th, Oct 8th, Oct 22nd covering material taught by BE (each quiz is worth **8% = 24%**), after the Q&A session at **10.40 am** on Brightspace. **It is your responsibility to log on to complete and submit the quiz within the 40 min time window.**

There will be a **Mock exam** on Thursday Sept 17th so you can get familiar with online exams on Brightspace. There is no grade associated with the mock exam. If you have any **technical issues** using Brightspace, this is the time to figure this out and please contact the **computer help desk** via email (helpdesk@uvic.ca) ASAP.

- **Midterm: 28%** on Nov 16th at 10 am – 11.20 am on Brightspace covering material taught by FC

If you are unable to write at LEAST TWO quizzes and/or the midterm, alternative modes of evaluation might be necessary.

- **Final: 45%**, Time determined by UVic during exam period in December, cumulative, online exam on Brightspace.

- **Scientific Q & A assignment: 3%** participation. In this course we will have a Question & Answer forum for **biotechnology** related topics. Everybody can post questions and everybody can answer/comment on the questions. You get a participation mark for posting at least one question (1.5%) and for answering at least one question (1.5%) anytime during the term, but no later than **Nov 30th**.

- **Optional Paper assignment: 10%** (accordingly quizzes 21%, midterm 26%, Q&A 3%, final 40%)

Find a very recent research paper (published 2019 or 2020). This paper has to be closely related to class content. In case of doubt consult with the instructors before you start writing. Write a one – two page summary (including abstract, introduction, methods, results and discussion) of this paper. This can be done anytime during the term, but no later than **Nov 30th**. Please submit in Brightspace under ‘Optional paper assignment’. If you want feedback, email your draft BE at least **ONE WEEK BEFORE** the due date.

How to be successful

I strongly encourage you to use the designated lecture time and listen to the recorded lecture. You should take notes while you listen to the recordings. If you have questions: please ask in the **Q&A forum on Brightspace** (available 24/7!) and/or during the **Q&A session biweekly on Thursdays on Zoom!**

It is very important to stay on track and to focus on class material.

I want you to know that **off – task activities** like checking email, text messaging, checking social network sites, is **negatively affecting students' grades by more than 10%**. **I strongly recommend that you TURN OFF your off – task aps/programs during your study time to allow you to focus and not be distracted by social media and other non-course related sites!**

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 O. 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. All exams are written at home, so they are all open book exams: you are allowed to consult lecture notes and textbook, however budget your time carefully! The exams (quizzes, midterm and final exam) must all be taken **individually** and not with a friend/classmate or a group. You are prohibited from sharing any information about the exam with others.

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

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. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. **Especially in those crazy times during this pandemic.**

I hope that you are enjoying a great fall term with Bio401A Biotechnology!

UVic services:

Student Supports for Online Technology:

- information on Zoom at

<https://www.uvic.ca/systems/services/avmultimedia/zoomvideoconferencing/index.php>

Learn anywhere:

<https://onlineacademiccommunity.uvic.ca/LearnAnywhere/>

New Student Connect Program

*As a critical tool to build student communities and meaningful engagement outside of the learning setting in a predominately online environment, all **new to UVic** students (undergraduate & graduate) will have opportunities to participate in New Student Connect. Participating students will be assigned in small groups by Faculty and/or interest groups to upper year peer mentors who will provide a wealth of knowledge about student life, the UVic student community, available support services, and ways that students can get connected as needed.*

<https://www.uvic.ca/services/studentlife/initiatives/new-student-connect/index.php>

New Student Mental Health Supports

In addition to providing both face to face and online mental health resources through our new Student Wellness Centre (opened in July), a new 24x7 phone & online student mental health resource and support program is now available for all UVic students, no matter where they are located, at any time.

<https://www.uvic.ca/services/counselling/resources/supportconnect/>

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. 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, Web: www.uvic.ca/svp