

**Principles of Genetics – BIOL 230 – A01**  
**Course Outline, Spring 2022**

**Welcome to BIOL230**

We acknowledge and respect the ləkʷəŋən 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. We are thankful to be able 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, socio-economic backgrounds and abilities.

We are a team of dedicated science teachers who love genetics. Our goal is to teach you complex cellular processes involving discoveries from over one hundred years ago (Mendelian genetics) or just last decade (Next gen sequencing). We will show you how genetics plays an important role in all our daily lives (genetically modified crops, forensic investigations, medical diagnostics)! We hope you enjoy “Principles of Genetics”, and we wish to provide you with a detailed and foundational understanding of genetics.

**Teaching Team:**

- Dr. Barbara Ehltng (Course-coordinator and lecturer), email: [behlting@uvic.ca](mailto:behlting@uvic.ca)  
Office hours: via Zoom, please email to arrange a time
- Dr. Gregory Owens (lecturer), email: [grego@uvic.ca](mailto:grego@uvic.ca)  
office hours: via Zoom, TBD starting Feb 14<sup>th</sup>.
- Kimberley Curry (Senior Laboratory Instructor), email: [biologylabs@uvic.ca](mailto:biologylabs@uvic.ca)

You can find out more about us on the Brightspace ‘Meet your instructor’ site!

Office hours are for you to connect with us, discuss lecture material, and for us to get to know each other.

**Lectures place and time**

- Tue, Wed and Fri 10:30 – 11:20 am
- Classes start week of Jan 10<sup>th</sup> and end Wednesday April 5<sup>th</sup> 2022.
- The first two weeks of lectures (Jan 10 – Jan 21) will be delivered online via zoom and/or pre-recorded powerpoint presentations. Please check the Brightspace site for material and links.

- at the moment we plan to teach face-to-face starting the week of Jan 24<sup>th</sup> in Bob Wright Science Building Lecture Hall B150.

- Pre-requisite: Biol225. Pre- or Co-requisite: Chem231. Recommended: Biochem299

We accommodated all students on the waitlist by adding an online session to this class. The class room has about 350 seats and we have over 400 students now registered in this class. How can we make this work? All lecture material will be recorded and posted on Brightspace and will be accessible for everybody. So please, if you are not well or if you learned better in your own room, use all the online material. I hope that we will be able to fit everybody who really wants to be there in person into the classroom.

### **Textbook and Lecture slides:**

- 'Genetics Analysis and Principles' by Robert J. Brooker, 7<sup>th</sup> (2021) edition, McGraw- Hill Ed.

- Lecture notes will be posted on the Brightspace website for you.

- We plan to record the live lectures and post the recordings on Brightspace.

*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).***

### **Learning Outcomes:**

-You will learn how molecular processes like cell division works.

-You will understand how cells access and use their genetic material.

-You will understand inheritance patterns of traits.

- You will learn traditional methods as well as modern techniques.

-You will see how genetic knowledge is used and applied and present in our daily lives.

- You will learn a variety of experimental approaches in general, and applied to specific examples over the entire term.

-You will learn to read and interpret figures from peer reviewed scientific papers.

-You will learn to collaborate with your peers in a group project and the benefits of teamwork

### Tentative lectures schedule:

1. Introduction, the cell cycle, and genetic significance of mitosis and meiosis (BE)
2. Transcription (BE)
3. Translation (BE)
4. Gene expression (BE)
5. Biotechnology: cloning, sequencing...(BE)
6. Genomics and proteomics (BE)
7. Mendelian inheritance, Extension of Mendelian inheritance I and II (GO)
8. Population genetics (GO)
9. Evolutionary genetics (GO)
10. Quantitative genetics and genetic mapping (GO)
11. Genetics and society (GO)

### Important dates this spring term 2022. Events happen during class time unless noted otherwise.

- |                          |  |
|--------------------------|--|
| 12. Jan 11 <sup>th</sup> | Introduction of the course and the team via zoom.                                  |
| 13. Jan 14 <sup>th</sup> | first weekly participation quiz on Brightspace                                     |
| 14. Jan 23 <sup>rd</sup> | Last day for 100% reduction of second term fees                                    |
| 15. Jan 24 <sup>th</sup> | return to face-to-face lectures (as planned at beginning of January, might change) |
| 16. Jan 26 <sup>th</sup> | Last day for adding courses that begin in the second. term                         |
| 17. Feb 11 <sup>th</sup> | Midterm online during class time (Remember: no participation quiz this week)       |
| 18. Feb 13 <sup>th</sup> | Last day for 50% reduction of tuition fees for standard courses                    |
| 19. Feb 18 <sup>th</sup> | Deferred midterm online at 1 pm  |
| 20. Feb 21-25            | reading week, no lectures, no labs   |
| 21. Apr 1 <sup>st</sup>  | Last weekly participation quiz on Brightspace                                      |
| 22. Apr 6 <sup>th</sup>  | Last class for biol230   |

### How to be successful?

Do you want good grade in this course? Look for the 'How-to-Study' guide on Brightspace. But here is the **most important advice**: I want you to know that **off – task activities** (checking email, surfing the internet, checking social network sites) during lectures and study time is **negatively affecting students' grades by more than 10%** (Sana *et al.*, 2013).

Exam times can be very stressful for you. In order to stay healthy physically and mentally make sure that you get enough sleep, eat well, exercise and take breaks. Avoid last minute study panic by working regularly throughout the term: we recommend that you spend at **least 1-2 hours studying after each lecture!**

Life can happen and it can happen to every one of us. If there is any situation arising that makes it difficult for you to be successful in this class, please come and talk to me (BE). I am sure that together we can find solutions!

## Evaluation:

### 1. Lecture component (60%):

- **Midterm** (20%): Friday Feb 11<sup>th</sup> at 10.30 am during class time. Online exam via Brightspace

Deferred midterm if you miss the midterm for valid reason (illness, accident, family crisis or athletic competition representing UVic), it is your responsibility to inform the course coordinator (BE) as soon as possible to confirm writing the deferred midterm. There is no need to provide a doctor's note this term. The **deferred midterm** will be scheduled for Friday Feb 18<sup>th</sup> at 1 pm on Brightspace.

You can write the exam in the classroom or you can write the exam at home. The exams will be open book, you are allowed to access your notes/bring a cheat-sheet, but you have to **take the exam as an individual** and you are NOT allowed to contact any person during the exam.

Students are expected to bring their own mobile devices to write the exam. If you have no mobile device, please contact the course coordinator (BE) at the beginning of term and we will find a solution for you.

- **Participation grade**: 5% **Every Friday** there will be a **participation quiz** posted on Brightspace and should be answered within 24 h. This is participation only and as long as you make an effort to answer all questions you will be given full marks (0.5% for each quiz, 10 quizzes in total). The first quiz will be on Friday Jan 14<sup>th</sup> and the last one on April 1<sup>st</sup>. There will be one quiz every week, exceptions are the day of the midterm and during reading week. It is your responsibility to complete those participation quizzes.

- **Final exam** (35%). Time determined by UVic during exam period in April, cumulative.

You are expected to **observe UVic academic regulations and standards of scholarly integrity** especially with regards to plagiarism and cheating. Exams that are written online, are open book exams: you are allowed to consult lecture notes and textbook, however budget your time carefully (there will NOT be enough time to look up the answers for every single question)! The exams must be taken **individually** and not with a friend/classmate or a group. You are prohibited from sharing any information about the exam with others or from capturing or recording (screen shots) exam questions.

### 2. Lab component (40%):

- 10% **My Gene project** final tree write-up and presentation

- 5% **participation** (TopHat questions, discussions in lab work)

- 15% **assignments** (primer assignment, pub med assignment, discussion assignment)

- 10% **lab exam** (written together with final lecture exam)

Please see the lab manual for lab-specific assessments and policies.

**Students must pass both the lecture & lab by scoring at least an overall 50% in both components in order to pass the course.**

**Grade conversion:**

A+ 90-100%; A 85-89.5%; A- 80-84.5%; B+ 77-79.5%; B 73-76.5%; B- 70-72.5%;

C+ 65-69.5%; C 60-64.5%; D 50-59.5%; F <49.5%

**Lab Manual**

This semester, we will be using the Top Hat digital learning platform which hosts this semester's **Biology 230 Genetics Laboratory Manual**. To gain access to your Top Hat course, where the Ebook will be located, click on this link: <https://app-ca.tophat.com/e/507713>. Your unique course code is: **507713**.

If you have a pre-existing Top Hat account, log-in with your credentials. If you are new to Top Hat and do not have an account, we have a great orientation video created just for you: <https://success.tophat.com/s/article/Student-Getting-Started-with-Top-Hat>. Please register with your **UVIC** email. You will find information on how to purchase your Top Hat Subscription, Manage your account settings, and learn more about Top Hat's IOS and Android App.

Upon checkout, you will be prompted to pay with a credit card. If you have purchased the Top Hat Access Key directly from your bookstore, click on "redeem access code" to proceed to put in the 13-digit code. Don't worry if you don't see any content in the course right away, I will make it available to you as we progress through the semester. You should now have access to Top Hat Ebook!

**As a note, if you are using a computer or laptop, Google Chrome or Firefox are the recommended browsers. If you are using a smartphone, you will need to download the Top Hat app from the IOS or Android App store. If you are using a tablet, it is recommended that you use the Google Chrome browser to access Top Hat, and not the app.**

If you have any issues, please contact Top Hat's Support Team directly at [support@tophat.com](mailto:support@tophat.com). Response times can take up to 24 hours. For faster response, you can chat with support at <https://success.tophat.com/s/contact-main>.

In order to get the best help please provide:

- Email you have used to register or will use to register
- Top Hat Course Link
- Top Hat Join Code
- Detailed Explanation of your issue with screenshots

### **How do we connect?**

- Brightspaces will be used to post lecture slides, pre-recorded lectures, assignments, Q&A forums, quizzes, announcements and more...

- *Administrative questions*: If you have any administrative related questions, please post your question on Brightspace under 'Administrative Q & A forum'. Those could be questions like 'When do we write quiz 1?' (Hint: often you find the answers to those question in the course outline or on Brightspace)

- *Scientific questions*: if you have any topic related question, please post your question on Brightspace under 'Scientific Q & A forum'. Those could be question like 'Does the *lacI* gene belong to the lac operon?' This is a great study tool before quizzes/exams!

- *Lab-specific questions*: if you have any questions related to the laboratory content, please post your question on Brightspace under 'Lab Q & A forum'.

### **COVID-19 regulations**

We require you to wear masks in the classroom and laboratory, in accordance with the latest provincial health mandates.

If you are not feeling well, stay at home. Do the COVID self-assessment and get tested if necessary. If you miss class, you will be able to catch up listening to the recording of live classes on Brightspace.

If we as instructors have to stay home and self-isolate following the orders of the public health ministry, we will deliver course content by pre-recorded lectures.

### **We hope that you enjoy a great spring term with Biol230 Genetics!**

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

### **General regulations:**

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 at least two exams 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.

It is your responsibility to be aware of ADD/DROP dates published in the Calendar. If you intend to drop this course, please do so officially and give up a space for students who might be on a waitlist.

You are expected to observe UVic standards of scholarly integrity especially with regards to plagiarism and cheating. If you cheat during an exam, you will be graded with 0 for this exam and the incident will be reported. Further consequences might apply.

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

**Other resources for you to maintain a healthy student life:**

- 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. **You are not alone.**

- **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>

End of course outline