

## **Biology 230 Genetics, Spring term 2020**

### **Why genetics?**

We are a team of dedicated science teachers who love genetics. Our goal is to teach you complex cellular processes, discovered over one hundred years ago or just last decade. We want to show you how science and specifically genetics plays an important role in all our daily lives! We hope you enjoy and get a detailed and foundational understanding of genetics.

### **Who are we:**

**Lecturer: Dr. Francis Choy**, Cunningham Building Room 062;

tel. 250 721-7107; email: [fchoy@uvic.ca](mailto:fchoy@uvic.ca)

**Course-coordinator and lecturer: Dr. Barbara Ehling**, Petch Building Rm 005; tel. 250 472-4066; email: [behling@uvic.ca](mailto:behling@uvic.ca)

**Senior Laboratory Instructor: Kim Curry**, Cunningham Rm. 110; tel. 250 721-7136; email: [cellbiol@uvic.ca](mailto:cellbiol@uvic.ca)

### **Place and time:**

Bob Wright Science Building Lecture Hall B-150, Tues, Wed & Fri 10.30-11.20 a.m.

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

**Genetics Analysis and Principles** by Robert J. Brooker, 6<sup>th</sup> (2018) edition, McGraw- Hill Education.

Lecture notes will be posted on a CourseSpaces website for you. We 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.**

**Method of grade assignment:** Laboratory: 40%; lectures: 60%

**Lecture component** - 1<sup>st</sup> and 2<sup>nd</sup> midterm examination 15% each; final lecture examination, 30%. **Students must pass both the lecture & lab by scoring at least an overall 50% in both components in order to pass the course.**

### **Important dates:**

**Feb 4 (Tuesday) First mid-term examination** during class time

**Feb 17-21 (Monday – Friday) Reading Break: no lectures and no labs**

**March 10 (Tuesday) Second midterm exam** during class time

**Final examination in April, date and place TBA**

**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 2-3 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. I am sure that together we can find solutions!

If you cannot attend an exam for a 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 and provide suitable documentation from a doctor/ counselor/ coach.

If you miss a midterm, a deferred midterm will be scheduled within one week of the original exam. If you miss the deferred due to valid reason, your grade will be calculated accordingly. You **MUST** write at least ONE midterm.

**Tentative lectures schedule:**

**Dr. Choy** will cover the eukaryotic cell cycle, mitosis, meiosis, cytogenetics, Mendelian genetics and extension, pedigree analysis, biochemical genetics, non-Mendelian inheritance, quantitative genetics, the Lyon's hypothesis, epigenetics, & molecular basis of mutations

**Dr. Barbara Ehltling** will lecture on transcription (about 3-4 lectures), translation (2 lectures), regulation of gene expression (3 lectures), recombinant DNA technologies including modern approaches in genomics and proteomics and applications in biotechnology (6 lectures), population genetics (2 lectures).

Since the pre-requisites for Biol. 230 are Biol. 225 & Chem 231, & Biochemistry 299 is strongly recommended, students are expected to have fundamental knowledge of DNA structure & function, transcription & translation, amino acids, proteins, carbohydrates, and lipids.

Our goal is to coordinate lecture and lab topics as closely as possible!

1. Introduction, the cell cycle, and genetic significance of mitosis and meiosis (FC)
2. Chromosome transmission and cytogenetics (FC)
3. Mendelian inheritance, Extension of Mendelian inheritance I and II (FC)
4. Transcription (BE)
5. Translation (BE)
6. Gene expression (BE)
7. Biotechnology: cloning, sequencing...(BE)
8. Genomics and proteomics (BE)
9. Population genetics (BE)
10. Biochemical genetics I and II and pedigree analysis (FC)
11. The Lyon's hypothesis and molecular mechanism of X chromosome inactivation, Extra nuclear inheritance, epigenetics (FC)
12. DNA mutations and repair (FC)

**How to be successful?** Do you want good grade in this course? Look for the 'How-to-Study' guide on course spaces. But here is the **most important advice**: I know that students like to take notes on laptops. HOWEVER, I want you to know that **off – task activities** like checking email, surfing the internet, checking social network sites, is **negatively affecting students' grades by more than 10%**. This is true for the student involved in the off-task activities, but also affecting students sitting nearby (Sana *et al*, 2013). Because of that I please ask you to actively **TURN OFF your internet, email and cellphone during class time!!! We also recommend that you turn off your electronic devices during your study time at home to allow you to focus and not be distracted by social media and other non-course related sites.**

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. **You are not alone.**

**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. <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. <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)

**We hope that you are enjoying a great spring term with Biol230 Genetics!**