

ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

COURSE INFORMATION

Course Title	Course Code Number	Credit Value
Developmental Origin of Human Disorders	MEDG419	3

PREREQUISITES

UBC BIOL234 (72% minimum) and one of either BIOL331 or BIOL335 (72% minimum).

COREQUISITES

None.

CONTACTS

Course Instructor	Contact Details	Office Location	Office Hours
Dr. Cathy Van Raamsdonk (Course coordinator)	cvr@mail.ubc.ca	Life Sciences Centre 2350 Health Sciences Mall Rm 5.504	Instructors will be available upon request by email -Meetings over Zoom are a convenient option
Dr. Louis Lefebvre	louis.lefebvre@ubc.ca	Life Sciences Centre 2350 Health Sciences Mall Rm 5.503	
Dr. Wendy Robinson	wrobinson@bcchr.ca	BC Children's Hospital Research Institute, 938 W 28th Ave, Rm 2082 (off campus)	
Laura L. Chan (TA)	Laura.Chan@bcchr.ca	BC Children's Hospital Research Institute, 938 W 28th Ave, Leavitt Lab (off campus)	

TEACHING ASSISTANT

Laura Chan; Laura.Chan@bcchr.ca

OVERVIEW

MEDG 419 (3 credits) is a 4th year course for undergraduates and first year graduate students in Medical Genetics and covers genetic and epigenetic determinants of development from conception to birth, particularly as they relate to congenital genetic disorders of development and pregnancy complications.

COURSE STRUCTURE

The course consists of lectures in the first half of the term. Instructors alternate giving lectures (see Schedule of Topics below). In the second half of the term, students will sign up in pairs to present a 30 minute slide presentation on an assigned research paper. Presentations occur at the start of each class. Instructors will then lecture for the remainder of the time. The course also includes two guest lectures. Marks are given for a quiz, the midterm exam, class participation, student presentation, discussion questions formulated based on the research papers and the final exam. Seven optional tutorial sessions will be led by the Teaching Assistant. The time and location of the tutorials will be determined at the start of the term.

Mid-term: **Tuesday, October 19 at 3:30 p.m.**

Covers everything presented in Lectures 1-10

Final exam: **December exam period, TBD.**

Covers everything presented in Lectures 11-23, assigned research papers, all experimental methodology, and all material in the first half of the term that supports the understanding of material in the second half of the term.

SCHEDULE OF TOPICS

The class meets on Tuesday and Thursday from 3:30 pm to 4:50 pm. Class will take place in the Neville Scarfe building (SCRF) - room 1328 on the Point Grey campus. Below is the schedule of topics.

Lecture	Date	Lecturer & Topic	Student presentation
1	Tues. Sep 7 Thurs. Sep 9 Fri. Sep 10	Imagine Day - no class Lefebvre – Introduction and technologies for mouse models No Tutorial	None
2 3	Tues. Sep 14 Thurs. Sep 16 Fri. Sep 17	Lefebvre – Pre-implantation development Lefebvre – Embryonic stem cells and chimeras Tutorial – TA	None
4 5	Tues. Sep 21 Thurs. Sep 23 Fri. Sep 24	Robinson – Chromosomal abnormalities Robinson – Diagnosis of chromosomal and molecular genetic abnormalities No Tutorial	None

6	Tues. Sep 28 Thurs. Sep 30 Fri. Oct 1	Robinson – Reproduction and infertility Truth and Reconciliation Day (no class) Tutorial – TA	None
7 8	Tues. Oct 5 Thurs. Oct 7 Fri. Oct 8	Van Raamsdonk – Neural tube defects Guest lecture by Dr. Karla Bretherick – Genome Diagnostics at BC Children’s and Women’s Hospital No Tutorial	None
9 10	Tues. Oct 12 Thurs. Oct 14 Fri. Oct 15	Van Raamsdonk – Teratogens Van Raamsdonk – Neural crest cells Tutorial for Midterm Exam -TA	None
11	Tues. Oct 19 Thurs. Oct 21 Fri. Oct 22	Midterm Exam Van Raamsdonk - Treacher Collins syndrome No Tutorial	None
12 13	Tues. Oct 26 Thurs. Oct 28 Fri. Oct 29	Lefebvre – Placental development Lefebvre – Germ line development Tutorial – TA	presentation 1
14 15	Tues. Nov 2 Thurs. Nov 4 Fri. Nov 5	Lefebvre – Genomic imprinting Lefebvre – No Tutorial	presentation 2 presentation 3
16	Tues. Nov 9 Thurs. Nov 11 Fri. Nov 12	Van Raamsdonk - GWAS Fall Break Fall Break - No Tutorial	presentation 4
17 18	Tues. Nov 16 Thurs. Nov 18 Fri. Nov 19	Guest lecture – Dr. Joy Richman - Cleft lip and palate Robinson – Human placenta; mini-talk by Lauren St-Germain Tutorial – TA	presentation 5
19 20	Tues. Nov 23 Thurs. Nov 25 Fri. Nov 26	Robinson – Mosaicism and chimerism Robinson – No Tutorial	presentation 6 presentation 7
21 22	Tues. Nov 30 Thurs. Dec 2 Fri. Dec 3	Van Raamsdonk – Pigmentary disorders Van Raamsdonk – Gene therapy for congenital blindness Tutorial – TA	presentation 8
23	Tues. Dec 7	Van Raamsdonk – Twinning & Course evaluation A tutorial for the Final Exam will be scheduled in November	presentation 9

LEARNING OUTCOMES

The objectives of this course are to learn key concepts in human and mouse genetics and developmental biology; to critically and effectively read original research papers; and to learn how to present and discuss scientific research.

LEARNING ACTIVITIES

This class is conducted in a combination of instructor lectures, student presentations, discussions of research papers - both in class and on UBC's interactive learning interface (Canvas)- and tutorial sessions. See the "Student Presentation Guidelines" document for more details on the student presentations.

LEARNING MATERIALS

Lecture slides, lecture notes, links to research and review papers, student presentation slides, and one page presentation summaries will be posted on Canvas. Students should check for updates frequently. Students will post questions and respond to questions about the research papers on Canvas in the Discussion area (See the "Student Presentation -Discussion assignment" document for instructions.) There is no text book. The lecture material on Canvas is organized by instructor name -> class date.

ASSESSMENTS OF LEARNING

The course will be graded based on class participation (5%), a quiz (5%), the midterm exam (25%), student presentations (15%), the presentation discussion assignments (15%), and the final exam (35%). Exams are written. See the "Class participation" document for more information on how class participation is marked.

UNIVERSITY POLICIES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website.

LEARNING ANALYTICS

Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. In this course, we plan to

- Track overall class progress
- Acquire personalized feedback via a mandatory questionnaire at the conclusion of the class

LEARNING RESOURCES

Source material required to cover content in the class should be available through PubMed or the UBC library, or will be posted on Canvas.

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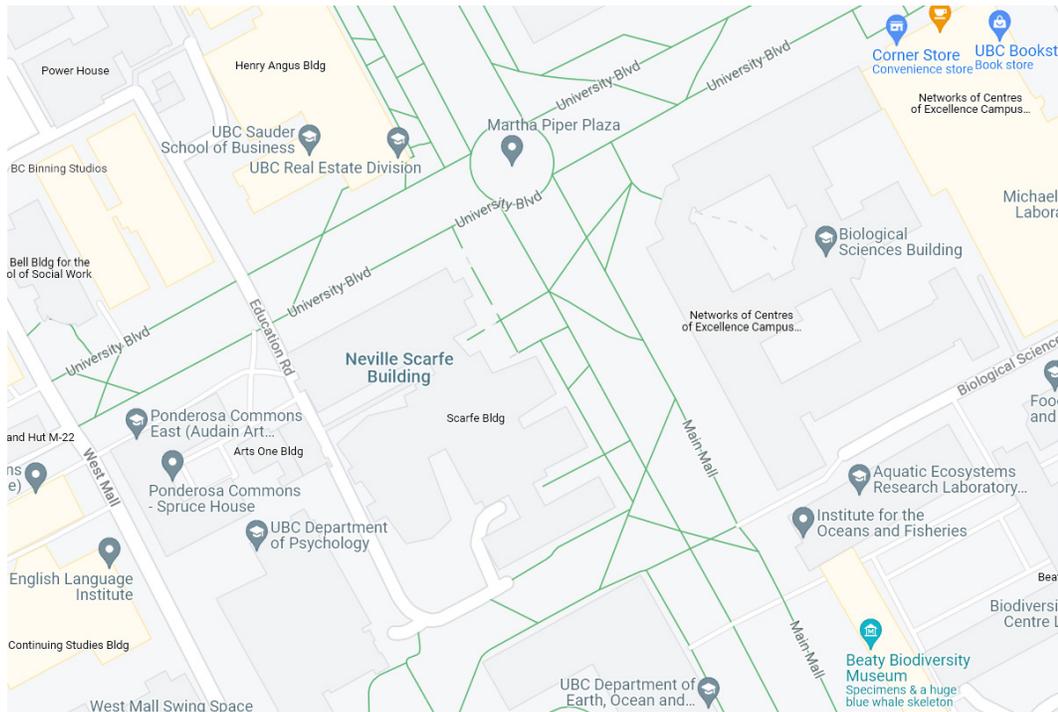
All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the course instructors or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.

Recording this class is not permitted.

ACCESSING CLASSES

The class meets on Tuesday and Thursday from 3:30 pm to 4:50 pm. Class will take place in the Neville Scarfe building (SCRF) in room 1328, on the Point Grey campus. The location and time for the optional tutorials will be determined during the first week of class.

Map:



ADAPTATIONS FOR COVID-19

Mask wearing protects you as well as others in your environment. Let's do everything we can as a community to stop the spread of COVID-19. Provincial Health Orders and UBC policy now mandate masks in all indoor public spaces on campus, including classrooms. If you must drink during class, replace your mask between sips.

Note: students who wish to request an exemption to the indoor mask mandate must do so based on one of the grounds for exemption detailed in the PHO Order on Face Coverings (COVID-19). Such requests must be made through the Center for Accessibility. After review, students that are approved for this accommodation will be provided with a letter of accommodation to share with faculty members teaching courses in which they are registered. In the intervening time, all students are welcome in the class. Email Cathy Van Raamsdonk and Laura Chan before the first class to let us know that you are seeking a mask accommodation.

If you are sick, it is important that you stay home. Complete a self-assessment for Covid-19 symptoms before coming to class: <https://bc.thrive.health/covid19/en>. We will be providing flexibility in marking so that you can prioritize your health and still succeed.

If you miss a class because of illness:

- Email the TA and course coordinator (Laura Chan and Cathy Van Raamsdonk) right away to let us know that you will be/were absent due to illness. We will drop the class participation mark(s) for that day.

To catch up, you can:

- Consult the class resources on Canvas. Slides used in class and lecture notes/presentation handouts will be posted before each class.
- Make a connection early in the term to another student or a group of students in the class. You can help each other by sharing notes. If you don't yet know anyone in the class, post on the discussion forum to connect with other students.
- Use the Canvas discussion forum to ask questions.
- Attend the next available Friday tutorial.
- Request a Zoom meeting with the instructor or TA.

If you are feeling ill and cannot attend class for the midterm: Please email the course coordinator (Cathy Van Raamsdonk) right away. We will make alternate arrangements with you. It is better to email ahead of time and not attend.

If you are feeling ill and cannot attend class for your student presentation: Please email your partner, the course coordinator (Cathy Van Raamsdonk) and the TA (Laura Chan) right away. We will reschedule your presentation to a later date. We have left some room in the schedule for flexibility.

If you are feeling ill at the time of the final exam: Do not attend the final exam. You must apply for deferred standing (an academic concession) through Academic Advising. Students who are granted deferred standing (SD) will write a different version of the final exam at an agreed upon time during the next term.

If the scheduled instructor is feeling ill: If one of us is unwell, we will not come to class. We will make every reasonable attempt to communicate plans for class as soon as possible (by email and on Canvas). Our classroom will still be available for you to sit in and attend an online session. In this instance:

- One of the other instructors will substitute (teaching their next scheduled topic) OR
- If an instructor is well enough to teach, but is taking precautions to avoid infecting others, they may hold the class via Zoom. If this happens, you will receive an announcement in Canvas informing you how to join the class (through a zoom link on Canvas).

We will not request or collect personal health information as per UBC policy. You will not be asked about your vaccination status. If you find that you have become Covid-19 positive and want to inform us of this fact, we will keep the information confidential.