

## 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)	<a href="mailto:cvr@mail.ubc.ca">cvr@mail.ubc.ca</a>	Life Sciences Centre 2350 Health Sciences Mall	Instructors will be available upon request by email  -Meetings over Zoom are a convenient option
Dr. Louis Lefebvre	<a href="mailto:louis.lefebvre@ubc.ca">louis.lefebvre@ubc.ca</a>	Life Sciences Centre 2350 Health Sciences Mall	
Dr. Wendy Robinson	<a href="mailto:wrobinson@bcchr.ca">wrobinson@bcchr.ca</a>	BC Children's Hospital Research Institute, 938 W 28th Ave, Rm 2082 (off campus)	
Dr. Carolyn Brown	<a href="mailto:carolyn.brown@ubc.ca">carolyn.brown@ubc.ca</a>	Life Sciences Centre 2350 Health Sciences Mall	
Dr. Pamela Hoodless	<a href="mailto:hoodless@bccrc.ca">hoodless@bccrc.ca</a>	BC Cancer Agency 675 W 10th Ave. (Off campus)	
Hannah Bourget (Teaching assistant)	<a href="mailto:hannahbourget@outlook.com">hannahbourget@outlook.com</a>	Life Sciences Centre 2350 Health Sciences Mall	

## TEACHING ASSISTANT

Hannah Bourget; [hannahbourget@outlook.com](mailto:hannahbourget@outlook.com)

## 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 35 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 guest lectures. Marks are given for a written assignment, the midterm exam, class participation, student presentation, discussion questions formulated based on the research papers and the final exam. Further information can be found on the Canvas course site. 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. All classes are held in person.

**Mid-term:** **Tuesday, October 22 at 3:30 p.m.**

Covers everything presented in Lectures 1-12

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

Covers everything presented in Lectures 13-23, 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 is scheduled for Tuesday and Thursday from 3:30 pm to 5 pm (ending at 4:50 pm). **Class will take place in the Life Sciences Centre room 1.510, on the Point Grey campus.** Below is the schedule of topics.

Lecture	Date	Lecturer & Topic	Student presentation
1	Tues. Sep 3 Thurs. Sep 5 <a href="#">Fri. Sep 6</a>	Imagine Day - no class <b>Van Raamsdonk – Introduction</b> <a href="#">No Tutorial</a>	<b>None</b>
2 3	Tues. Sep 10 Thurs. Sep 12 <a href="#">Fri. Sep 13</a>	<b>Brown - Genes to chromosomes</b> <b>Brown - X inactivation</b> <a href="#">No tutorial</a>	<b>None</b>
4 5	Tues. Sep 17 Thurs. Sep 19 <a href="#">Fri. Sep 20</a>	<b>Van Raamsdonk – Neural tube defects</b> <b>Robinson - Chromosomal abnormalities</b> <a href="#">Tutorial #1</a>	<b>None</b>
6 7	Tues. Sep 24 Thurs. Sep 26 <a href="#">Fri. Sep 27</a>	<b>Robinson - Structural &amp; Mol. Genetic abnormalities</b> <b>Robinson - Reproduction &amp; infertility</b> <a href="#">No tutorial</a>	<b>None</b>

8	Tues. Oct 1 Thurs. Oct 3  Fri. Oct 4	<b>Graduate research in Medical Genetics</b> <b>Van Raamsdonk - Teratogens</b>  Tutorial #2	None
9 10	Tues. Oct 8  Thurs. Oct 10  Fri. Oct 11	<b>Van Raamsdonk - Gene therapy for blindness</b>  <b>Van Raamsdonk - Neural crest and the face</b>  No tutorial	None
11 12	Tues. Oct 15 Thurs. Oct 17 Fri. Oct 18	<b>Guest lecture - Dr. Joy Richman - Cleft lip and palate</b> <b>Van Raamsdonk - Pigmentation</b> Tutorial #3	None
13	Tues. Oct 22  Thurs. Oct 24  Fri. Oct 25	<b>Midterm Exam</b>  <b>Robinson - Human placenta</b>  No tutorial	None
14 15	Tues. Oct 29 Thurs. Oct 31 Fri. Nov 1	<b>Robinson - Mosaicism and chimerism</b> <b>Van Raamsdonk - Cancer predisposition</b> Tutorial #4	TBD
16	Tues. Nov 5 Thurs. Nov 7 Fri. Nov 8	<b>Medical Genetics lab tours (in the LSI)</b> <b>Guest lecture - Dr. Meijer (Kobor lab) hosted by Dr. Brown</b> No tutorial	TBD
17	Tues. Nov 12 Thurs. Nov 14 Fri. Nov 15	<b>Fall Break</b> <b>Lefebvre - DNA methylation &amp; epigenetics</b>  No tutorial	TBD
18 19	Tues. Nov 19 Thurs. Nov 21 Fri. Nov 22	<b>Lefebvre - Genomic imprinting</b> <b>Guest lecture - Genetic Counseling, Courtney Cook, CCGC</b> Tutorial #5	TBD
20 21	Tues. Nov 26 Thurs. Nov 28 Fri. Nov 29	<b>Hoodless - Heart development</b> <b>Hoodless - Left-right patterning</b>  No tutorial	TBD
22 23	Tues. Dec 3 Thurs. Dec 5 Fri. Dec 6	<b>Van Raamsdonk - Introduction to PCR based diagnostics</b> <b>Guest lecture - Clinical lab genetics, Dr. Karla Bretherick</b> Tutorial #6	TBD

Final exam tutorial will be scheduled at the beginning of December

## 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.

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## LEARNING ACTIVITIES

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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. 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. See the "Written assignment instructions" document for details on the writing assignment.

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## LEARNING MATERIALS

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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. There is no text book.

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## ASSESSMENTS OF LEARNING

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The course will be graded based on class participation (5%), a written assignment (10%), the midterm exam (20%), student presentations (15%), the presentation discussion assignments (15%), and the final exam (35%). Exams are written. See the "Class participation" forms 1 & 2 for more information on how class participation is marked and to record your participation.

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## UNIVERSITY POLICIES

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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.

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## LEARNING ANALYTICS

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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

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## LEARNING RESOURCES

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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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## COPYRIGHT

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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.

## ACCESSING CLASSES

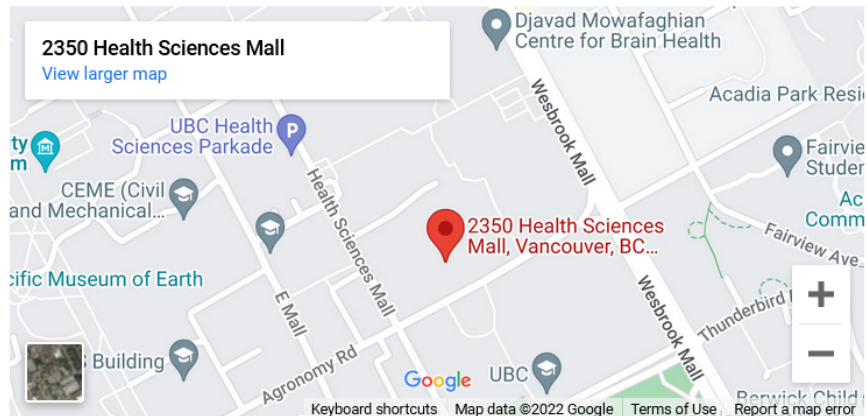
The class meets in person. The class is scheduled for Tuesday and Thursday from 3:30 pm to 5 pm (ending at 4:50 pm). Class will take place in the Life Sciences Centre room 1.510, on the Point Grey campus. The location and time for the optional tutorials will be determined by a poll taken during the first week of class to choose the most accessible option. Tutorials will be recorded and posted to Canvas.

## LIFE SCIENCES CENTRE



### Address

Life Sciences Centre  
2350 Health Sciences Mall  
Vancouver, BC V6T 1Z3



## ADAPTATIONS TO PROMOTE HEALTH

If you are sick, please stay home. We will be providing flexibility in marking so that you can prioritize your health and still succeed. We will drop your participation grade for that day.

### To learn missed material, you can:

- Consult the class resources on Canvas. Slides used in class and lecture notes will be posted.
- Make a connection early in the term to another student or a group of students in the class. You can help each other by reviewing notes.
- Request a meeting with the TA or the instructor.
- Attend the next available Friday tutorial. These will be recorded and posted to Canvas

**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.

**If you are feeling ill and cannot attend class for your student presentation:** Please email your partner(s), the course coordinator (Cathy Van Raamsdonk) and the TA right away. We will reschedule your presentation to a later date.

**If you are feeling ill at the time of 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.