Pathology and Laboratory Medicine
Pathology 4200A
Current Concepts in the Pathogenesis of Human Diseases

Course outline for Fall 2021

Although this academic year might be different, Western University is committed to a thriving campus. We encourage you to check out the Digital Student Experience website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: https://www.uwo.ca/health/.

1. Technical Requirements:

- Stable internet connection
- Laptop or computer
- Working microphone
- Working webcam

2. Important Dates:

<table>
<thead>
<tr>
<th>Classes Begin</th>
<th>Classes End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday, September 8, 2021</td>
<td>Wednesday, December 8, 2021</td>
</tr>
</tbody>
</table>

* November 12, 2021: Last day to drop a first-term half course without academic penalty

<table>
<thead>
<tr>
<th>Reading Week</th>
<th>Study day(s)</th>
<th>Exam Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 1–7</td>
<td>December 9</td>
<td>December 10–21</td>
</tr>
</tbody>
</table>

3. Contact Information

<table>
<thead>
<tr>
<th>Instructor(s) or Teaching Assistant(s)</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. M. Cecchini</td>
<td><a href="mailto:Matthew.cecchini@lhsc.on.ca">Matthew.cecchini@lhsc.on.ca</a></td>
</tr>
<tr>
<td>Dr. C. Howlett</td>
<td><a href="mailto:Christopher.howlett@lhsc.on.ca">Christopher.howlett@lhsc.on.ca</a></td>
</tr>
<tr>
<td>Dr. S. Maleki</td>
<td><a href="mailto:Saman.MalekiVareki@lhsc.on.ca">Saman.MalekiVareki@lhsc.on.ca</a></td>
</tr>
<tr>
<td>Dr. Z. Khan</td>
<td><a href="mailto:Zkhan5@uwo.ca">Zkhan5@uwo.ca</a></td>
</tr>
<tr>
<td>Dr. C. Castellani</td>
<td><a href="mailto:Christina.Castellani@schulich.uwo.ca">Christina.Castellani@schulich.uwo.ca</a></td>
</tr>
<tr>
<td>Frederikke Larsen (TA)</td>
<td><a href="mailto:Flarsen@uwo.ca">Flarsen@uwo.ca</a></td>
</tr>
</tbody>
</table>
4. Course Description and Design

**Delivery Mode:** In-person

This course will cover current concepts in the molecular and cellular pathogenesis of selected human diseases. Topics will include various aspects of cancer development, cardiovascular disease, autoimmune disease and emerging pathogens. Emphasis will be on cellular and molecular mechanisms driving disease and how gene defects and/or genetic variation influence susceptibility and trajectory of disease. **Prerequisite(s):** Pathology 3500 with a mark of at least 70% or the former Pathology 3240A and the former Pathology 3245B with a mark of at least 70% in each.

### Timetabled Sessions

<table>
<thead>
<tr>
<th>Component</th>
<th>Date(s)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Lecture, in-person</td>
<td>Tuesdays</td>
<td>1:30 – 3:30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SSC 3014</td>
</tr>
</tbody>
</table>

*Some lectures may be recorded

☑️ Missed work should be completed within 24 hours

All course material will be posted to OWL: [http://owl.uwo.ca](http://owl.uwo.ca). Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Help page](http://owl.uwo.ca). Alternatively, they can contact the [Western Technology Services Helpdesk](http://owl.uwo.ca/helpdesk). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](http://owl.uwo.ca/helpdesk) or [Mozilla Firefox](http://owl.uwo.ca/helpdesk) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](http://owl.uwo.ca/helpdesk).

NOTE: In the event of a COVID-19 resurgence during the course that necessitates moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any remaining assessments will also be conducted online at the discretion of the instructor.
5. **Learning Outcomes**

Upon successful completion of this course, students will comprehend:

- How “Next Generation” sequencing and digital pathology technologies are revolutionizing our understanding of disease and new ways of disease classification
- Molecular pathology of leukemias and other myeloproliferative neoplasms
- Molecular pathogenesis and diagnosis of some important endocrine neoplasms
- Immunology of cancer and different types of cancer vaccines
- Molecular and cellular mechanisms of tumor progression
- Stem cells in health and diseases with special reference to cancer
- The role of mitochondria in health and disease, such as cardiovascular disease
- The use of monozygotic twin models in studying complex diseases
- Pathogenesis of different autoimmune diseases
- Effects of biological sex on health and disease
- Virology, immunology, testing and vaccines for COVID19

6. **Course Content and Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sept 7</td>
<td>No class</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>Sept 14</td>
<td>Utilizing Next Generation Technologies in Neoplastic and Non-Neoplastic Lung Disease</td>
<td>Dr. M. Cecchini</td>
</tr>
<tr>
<td>3</td>
<td>Sept 21</td>
<td>Signaling Derangements in Acute and Chronic Leukemia’s</td>
<td>Dr. C. Howlett</td>
</tr>
<tr>
<td>4</td>
<td>Sept 28</td>
<td>Molecular Endocrinology of Multiple Endocrine Neoplasia</td>
<td>Dr. C. Howlett</td>
</tr>
<tr>
<td>5</td>
<td>Oct 5</td>
<td>Immunology of Cancer – An Introduction</td>
<td>Dr. L. Cameron</td>
</tr>
<tr>
<td>6</td>
<td>Oct 12</td>
<td>Immuno-oncology -1</td>
<td>Dr. S. Maleki</td>
</tr>
<tr>
<td>7</td>
<td>Oct 19</td>
<td>Immuno-oncology -2</td>
<td>Dr. S. Maleki</td>
</tr>
<tr>
<td>8</td>
<td>Oct 26</td>
<td>Stem Cells in Cancer</td>
<td>Dr. Z. Khan</td>
</tr>
<tr>
<td>9</td>
<td>Nov 1–7</td>
<td>Reading Week</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>Nov 9</td>
<td>Mitochondria in Health and Aging with a Focus on Cardiovascular Disease</td>
<td>Dr. C. Castellani</td>
</tr>
<tr>
<td>11</td>
<td>Nov 16</td>
<td>Monozygotic Twin Models in Complex Disease</td>
<td>Dr. C. Castellani</td>
</tr>
<tr>
<td>12</td>
<td>Nov 23</td>
<td>Autoimmune Disease</td>
<td>Dr. L. Cameron</td>
</tr>
<tr>
<td>13</td>
<td>Nov 30</td>
<td>Sex as a Biological Variable in Health and Disease</td>
<td>Dr. L. Cameron</td>
</tr>
<tr>
<td>14</td>
<td>Dec 7</td>
<td>Cutting Edge: Overview of Covid 19 – Virology, Immunology and Testing</td>
<td>Dr. S. Barr, Dr. S. Maleki, Dr. A. Cabrera</td>
</tr>
</tbody>
</table>
7. Participation and Engagement

☑ Students are expected to participate and engage with content as much as possible
☑ Students can participate during in-person lectures
☑ Students can also participate by interacting in the forums with their peers and instructors

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Format</th>
<th>Weighting</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>Multiple Choice</td>
<td>20%</td>
<td>Respective Fridays</td>
</tr>
<tr>
<td>Midterm</td>
<td>Short answer</td>
<td>40%</td>
<td>October 27, 2021</td>
</tr>
<tr>
<td>Final</td>
<td>Short answer</td>
<td>40%</td>
<td>Exam date to be announced</td>
</tr>
</tbody>
</table>

☑ Quizzes will be published on Tuesday and are due on Friday 11:55 pm EST of the same week unless otherwise specified
☑ Once opened there will be 5 minutes to answer the quiz. These will be available for one attempt only; they will not be reopened
☑ Quizzes will be marked automatically
☑ Best grades from 10 quizzes will be used
☑ After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days
☑ Midterm and final exams will be held on OWL as timed exams with Zoom proctoring

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>90-100</td>
<td>One could scarcely expect better from a student at this level</td>
</tr>
<tr>
<td>A</td>
<td>80-89</td>
<td>Superior work which is clearly above average</td>
</tr>
<tr>
<td>B</td>
<td>70-79</td>
<td>Good work, meeting all requirements, and eminently satisfactory</td>
</tr>
<tr>
<td>C</td>
<td>60-69</td>
<td>Competent work, meeting requirements</td>
</tr>
<tr>
<td>D</td>
<td>50-59</td>
<td>Fair work, minimally acceptable</td>
</tr>
<tr>
<td>F</td>
<td>below 50</td>
<td>Fail</td>
</tr>
</tbody>
</table>

**Information about late or missed evaluations:**

☑ Late assessments without self-reported absences or accommodation will be subject to a late penalty 10 %/day
☑ Late assessments with self-reported absences or accommodation should be submitted within 24 hours of the end of the self-report or accommodation (e.g., due Fri 11:55 pm; self-report covers Fri/Sat; new deadline is Sun by 11:55 pm OR 24 hours after the end of the accommodation period)
☑ Students who miss the mid-term for medical reasons, will need to write the make-up midterm
☑ If a make-up assessment is missed with documentation, the student will receive an INC and complete the task the next time the course is offered
9. Communication:

☑ Students should check the OWL site every 24 – 48 hours
☑ Students should email their instructor(s) and teaching assistant(s) using OWL ‘messages’
☑ Emails will be monitored daily; students will receive a response in 24 – 48 hours
☑ This course will use the OWL forum or Zoom for discussions
☑ Students should post all course-related queries on the discussion forum so that everyone can access the questions and responses

10. Office Hours:

☑ Office hours will be held by appointment only remotely using Zoom.

11. Resources

☑ All resources will be posted in OWL

12. Professionalism & Privacy:

Western students are expected to follow the Student Code of Conduct. Additionally, the following expectations and professional conduct apply to this course:

☑ All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
☑ Recordings are not permitted (audio or video) without explicit permission
☑ Permitted recordings are not to be distributed
☑ Students will be expected to take an academic integrity pledge before some assessments

13. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Keep handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
5. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.
14. Western Academic Policies and Statements

Absence from Course Commitments

Policy on Academic Consideration for Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reported absence or via the Academic Counselling unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence. Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the university’s policy on academic consideration for student absences.

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Science and BMSc students can contact academic counselling through the Help Portal: https://www.uwo.ca/sci/counselling/

Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed here.

Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found here.

Academic Offenses

“Scholastic offences are taken seriously, and students are directed here to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review The policy on Accommodation for Students with Disabilities.
Correspondence Statement
The centrally administered e-mail account provided to students will be considered the individual’s official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts here.

Discovery Credit Statement
Students are permitted to designate up to 1.0 Discovery Credit course (or equivalent) for pass/fail grading that can be counted toward the overall course credits required for their degree program. The details of this policy and the deadlines can be found here.

15. BMSUE Academic Policies and Statements

Cell Phone and Electronic Device Policy (for in-person tests and exams)
The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, i.e., cell phones, tablets, cameras, or iPod are strictly prohibited. These devices MUST be left either at home or with the student’s bag/jacket at the front of the room and MUST NOT be at the test/exam desk or in the individual’s pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

Copyright and Audio/Video Recording Statement
Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

Rounding of Marks Statement
Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. Final grades on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark “bumping” will be denied.

16. Support Services
The following links provide information about support services at Western University.

Academic Counselling (Science and Basic Medical Sciences)
Appeal Procedures
Registrarial Services
Student Development Services
Student Health Services