

Pathology and Laboratory Medicine
Molecular Genetics of Human Cancer, Pathology 4450A/ Biochemistry 4450A



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



Suggest having a webcam

2. Course Overview and Important Dates:



Delivery Mode	Dates	Time
Live online lectures (recorded)	Tuesdays	17:30-19:20
Live forum (recorded)	Tuesdays	19:30-20:00

*Details about design and delivery of the course are listed below in Section 4

Classes Start	Reading Week	Classes End	Study day(s)	Exam Period
September 15	November 2 - 8	December 9	December 10	December 11 - 22

* November 12, 2020: Last day to drop a first-term half course or a first-term full course without penalty

3. Contact Information



Course Coordinator	Contact Information
Dr. Fred Dick	fdick@uwo.ca

Teaching Assistant(s)	Contact Information
Rebecca Meaney	rmeaney2@uwo.ca

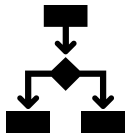
4. Course Description and Design

Course Description and Goals: Specific human genes are routinely mutated in cancer. This subverts normal cellular physiology creating characteristic alterations called ‘hallmarks’ that enable these cells to fuel the development of cancer. The underlying processes that alter gene function and the functional pathways they affect will be discussed. Cancer models and molecular therapies will also be investigated and related to the cancer hallmarks. Students can access the lectures in real-time or via the course’s OWL site, where the lectures will be archived throughout the term for all students.

Pre-requisites: Biology 2581b, Biochemistry 3381 or Pathology 3500

Mode	Dates	Time	Frequency
Virtual synchronous	Tuesdays	17:30-20:00	weekly
Virtual asynchronous (all course materials)	N/A		

- A recording will be provided for synchronous sessions within 24 hours
- Assignments must be submitted by the indicated due dates
- Quizzes and exams will be remote and completed asynchronously in the specified amount of time.



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

All of the remote learning sessions for this course will be recorded. The data captured during these recordings may include your image, voice recordings, chat logs and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals under special circumstances. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

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

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; up you're your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

5. Learning Outcomes



Upon successful completion of this course, students will be able to:

- **Demonstrate** a critical understanding of recent breakthroughs and advances in our understanding of the causation and treatment of multiple types of cancer. Students will be able to understand and evaluate news reports and new breakthroughs reported in the popular press in proper scientific context.
- **Interpret and explain** detailed, current knowledge about the molecular mechanisms and abnormalities responsible for cancer development.
- **Critically evaluate** diverse information sets related to cancer; offer opinions and exhibit theoretical understanding of novel treatment scenarios.
- **Clearly communicate** technical concepts and experimental results to diverse audiences in writing, in a style consistent with practice in the field.

6. Course Content and Schedule



Week	Dates	Topic	Instructor
2	Sept 14 – 20	Course introduction, Hallmarks of Cancer, Cancer Genes I	Dr. Fred Dick
3	Sept 21 – 27	Cancer Genes II and cBioportal	Dr. Fred Dick
4	Sept 28 – Oct 4	Model systems in cancer research, multistage cancer progression	Dr. Fred Dick
5	Oct 5 – 11	Apoptosis, immortality and senescence	Dr. Fred Dick
6	Oct 12 – 18	Genome instability and DNA damage repair	Dr. Fred Dick
7	Oct 19 – 25	DNA repair errors in specific cancers, review and feedback	Dr. Fred Dick
8	Oct 26 – Nov 1	Gene-environment interactions, introduction to cancer epigenetics	Dr. Fred Dick
9	Nov 2 – 8	Reading Week	N/A
10	Nov 9 – 15	The non-coding genome, and the histone code, Metastasis and angiogenesis	Dr. Fred Dick
11	Nov 16 – 22	Molecular diagnostics and pharmacogenetics	Dr. Fred Dick
12	Nov 23 – 29	New therapies: clinical trial designs and CDK4/6 inhibitors	Dr. Fred Dick
13	Nov 30 – Dec 6	New therapies: synthetic lethality	Dr. Fred Dick
14	Dec 7 – 9	Summing up and feedback	Dr. Fred Dick

7. Online Participation and Engagement



- Students have access to all course material through synchronous or asynchronous means
- Students can participate during live sessions or through live Q&A sessions
- Students can also participate by interacting in the forums with their peers and instructors

All components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- please “arrive” to class on time if you intend to view and participate in live content
- please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- to minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- in order to give us optimum bandwidth and web quality, please turn off your video camera for the entire class unless you are invited to speak
- please be prepared to turn your video camera off at the instructor’s request if the internet connection becomes unstable
- unless invited by your instructor, do not share your screen in the meeting

The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- if you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question, remember that there is a 30 minute Q & A session following lectures specifically for this purpose
- remember to unmute your microphone and turn on your video camera before speaking
- self-identify when speaking.
- remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

8. Evaluation

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

Assessment	Format	Weighting	Due Date
Assignment #1	Written submission in OWL	2.5%	Sept. 25, 2020
Quiz	Asynchronous online, questions and answers through OWL, to be completed in a 2.5 hour time window.	10%	Sept. 30-Oct. 2, 2020
Assignment #2	Written submission in OWL	2.5%	Oct. 16, 2020
Mid-term exam	Asynchronous online, questions and answers through OWL, to be completed in a 5 hour time window.	35%	Oct. 23-26, 2020 Make up: Nov. 11-13, 2020
Assignment #3	Written submission in OWL	2.5%	Nov. 20, 2020
Assignment #4	Written submission in OWL	2.5%	Dec. 4, 2020
Final exam	Asynchronous online, questions and answers through OWL, to be completed in a 7 hour time window.	45%	Dec. 11-15, 2020



- All assignments, quizzes, and exams are due at 11:55 pm EST on the last specified day.
- Assignments may be completed by individuals or groups of up to three classmates.
- The quiz will be problem solving and require the application of knowledge gained in the course. No two students could conceivably come up with the same written answers. Duplicate answers will be assigned zero.
- The mid-term and final examination will require problem solving through knowledge application and brief essay style answers. Questions will be randomly assigned through OWL such that each exam will contain unique combinations of questions.
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- 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

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.

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

Information about late or missed evaluations:

- Uncompleted assignments, quizzes, or exams without illness self-reports will be given zero.
- Uncompleted assignments with illness self-report(s) will be made up through an increased weighting of the final exam.
- An uncompleted quiz with illness self-report(s) will be made up through an increased weighting of the mid-term exam.
- A make-up mid-term test will be offered as outlined in the schedule.
- If a make-up assessment is missed, the student will receive an INC and complete the task the next time the course is offered.

Information about exam conflicts:

A student with examinations having flexible submission times (e.g., where one or more examination is a take-home examination) cannot request alternative arrangements unless a conflict cannot be avoided by rescheduling writing the exam to a different time within the window specified by the instructor. This applies to direct conflicts as well as “heavy load” conflicts (e.g., three exams within a 23-hour period). The student should discuss any concerns about a potential conflict and/or request accommodation with their academic counselling unit prior to the deadline to drop a course without academic penalty.

Information about exam accommodations:

The quiz, mid-term, and final exams are expected to take 1 hour, 2 hours, and 3 hours to complete, respectively. All students will be allotted 2.5, 5, and 7 hours as listed above. Consequently, most students who typically require extra time accommodation will not need any special arrangement for this course.

9. Communication:



- Students should check the OWL site at least every week.
- Emails will be monitored daily; students will receive a response in 24 – 48 hours.
- This course will use Zoom for lectures and discussions.
- This course will use the OWL forum for discussions.
- Students should post all course-related questions on the discussion forum so that everyone can access answers to questions. Priority will be given to answering these questions.
- The discussion forums will be monitored by teaching assistants

10. Office Hours:



- Office hours with TAs will be held remotely on Tuesdays and Thursdays at 10:30am where forum questions will be answered.
- Group discussions after lectures will be held, recorded, and posted for everyone to view

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:



- Students are expected to follow online etiquette expectations provided on OWL.
- 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.
- All recorded sessions will remain within the course site.

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. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
4. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support. Success on the quiz and exam valuations will be highly dependent on your ability to explain yourself. Practice explaining course material to peers.
5. 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).
6. 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. Academic Counselling will be operating virtually this year and can be contacted at scibmsac@uwo.ca.

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](#).

Turnitin and other similarity review software

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. All papers submitted for such checking will be included as

source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](https://www.turnitin.com).

15. BMSUE Academic Policies and Statements

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](#)