

# Cancer Biology

## BIOL-4230-WA

**Instructor:** Dr. Ingeborg Zehbe

**Graduate Assistant:** Robert Jackson, PhD Candidate

**Contact:** Please contact Robert Jackson ([rjackson@lakeheadu.ca](mailto:rjackson@lakeheadu.ca)) for questions and inquiries.

**Time & Location:** Mondays & Wednesdays: between 11:30 am and 1:00 pm (**AT 2006**)

**Textbook:** *The Biology of Cancer – Second Edition*. Robert A. Weinberg. (2013)

**Optional:** *The Emperor of All Maladies: A Biography of Cancer*. Siddhartha Mukherjee. (2011)

### Course Overview

The purpose of this course is to provide an introduction to the diverse field of cancer biology. This course possesses a clinical & research focus, but will also highlight additional concepts crucial for the students' understanding. Emphasis will be placed on engaging discussion and advancing topics in clinical cancer research.

### Lecture Structure

During the semester, lectures will be structured as formal lectures, preparatory seminars, lab tours, guest lectures, and group discussions.

### Mark Breakdown

Participation/Quizzes	10%
Mid-term exam	25%
Assignments (2)	30% (2 x 15%)
Final exam	35%

### Participation

Participation will be graded based on in-class student involvement. This includes participating in class discussions, answering and asking questions, and quizzes that will be administered throughout lectures.

### Assignments (A1 and A2)

Students will be given two assignments during the course. A1 – Cancer Biology Methods, which will include a preparatory seminar followed by a wet lab demonstration of technology. Students will then write a short summary on an assigned method to be due the following week. A2 – Journal Club, which will include a preparatory seminar followed by moderated small-group journal article discussions.

### Mid-term Exam

To be written in class and will be based off the material covered in the first half of the course.

### Final Exam

To be written during the examination period and will be based off the material covered in the second half of the course.

<b>Date &amp; Time</b>	<b>Lecturer / Presenter</b>	<b>Topic</b>
Jan 9/11 <sup>th</sup>	Dr. Ingeborg Zehbe & Robert Jackson	Course Introduction: marking scheme, assignments, overview of cancer bio
Jan 16/18 <sup>th</sup>	Dr. Ingeborg Zehbe & Melissa Togtema (PhD candidate)	Cancer Screening & Epidemiology & Personalized Medicine
Jan 23/25 <sup>th</sup>	Dr. Ingeborg Zehbe & Robert Jackson	<u>Assignment 1</u> : Cancer Biology Methods: Pre-seminar & Wet Lab Demonstration
Jan 30 <sup>th</sup> /Feb <sup>st</sup>	Dr. Ingeborg Zehbe & Robert Jackson	Oncogenes, Tumour Suppressors & Immortalization
Feb 6/8 <sup>th</sup>	<u>Guest lecture 1</u> : Dr. Nicholas Escott	Common Cancers Sites—Histology & Pathology
Feb 13/15 <sup>th</sup>	Dr. Ingeborg Zehbe	Tumour Immunology & Microenvironment
<b>Feb 20/22<sup>nd</sup></b>	<i>N/A</i>	<b>– Reading Week –</b>
Feb 27/Mar 1 <sup>st</sup>	<b>Mid-term Exam</b>	<b>Material from first half of the course</b>
Mar 6/8 <sup>th</sup>	Dr. Ingeborg Zehbe & Robert Jackson	Metastasis & Invasion
Mar 13/15 <sup>th</sup>	Dr. Ingeborg Zehbe & Robert Jackson	Stem Cells & Cancer Pathways
Mar 20/22 <sup>nd</sup>	Dr. Ingeborg Zehbe & Robert Jackson & Melissa Togtema & Peter Villa	<u>Assignment 2</u> : Journal Club: Pre-seminar & Journal Article Discussion
Mar 27/29 <sup>th</sup>	Dr. Ingeborg Zehbe & Robert Jackson & Peter Villa & Melissa Togtema	Infectious Agents & Immunotherapy
Apr 3 <sup>rd</sup> /5 <sup>th</sup>	<u>Guest lecture 2</u> : Dr. Pat Rapley (Apr 3) Dr. Ingeborg Zehbe & Robert Jackson	Cancer treatment: Chemotherapy & Radiation Discussion & Debate (Apr 5)
<i>Apr 12</i>	<b>Final Exam</b>	<b>Material from second half of the course</b>

### **Additional notes**

Lakehead University has a zero tolerance policy for academic dishonesty, including plagiarism. Class attendance is considered mandatory. Missed exams may only be written on an alternate date if a valid reason is provided. Late assignments will not be accepted. Non-class use of devices is not allowed.