

MDSC 561 Cancer Biology

Instructors:

Coordinator and instructor:

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Office Hours/Policy on Answering Student Emails

Tuesday and Thursday 2:30 – 3:15 pm
Will check email twice per day during the week

Time and Location:

ST 64, 3:30 – 4:45 pm, Tuesday/Thursday

Prerequisite:

BIOL 331, CMMB 411 and one of BCEM 401 or 443

Course Description:

Advances in methodology and in theoretical concepts have permitted continuing breakthroughs in our understanding of the organismal, cellular and molecular biology of cancer cells, and in the development of novel strategies for cancer prevention, diagnosis and treatment. These advances will be presented in a comprehensive overview of cancer including issues of demographics and incidence, causation and

detection, origins and progression and therapeutic approaches. Emphasis will be placed on the cell and molecular biology of cancer and on the interaction of the cancer cell with the host organism.

Overarching Theme

Cancer Biology

Learning Objectives

By the end of this course, students will be able to:

Understand cancer biology in general including molecular biology of cancer, histopathological characteristics of cancer, incidence, causation and detection, origins and progression and therapeutic approaches such as surgery, radiation and chemotherapy.

Required Textbooks

N.A.

Recommended Textbooks/Readings

The biology of the cancer by Robert A. Weinberg

A Note regarding readings

Students will give a brief oral presentation (worth 20%) based on a recent research article. This presentation should provide (in a maximum of 10 min + 2 min questions and answers) essential background, the key experiments presented in the paper, their interpretation, and any weaknesses, future directions, etc. Topics for the oral presentations will be provided, and you must sign up in advance, indicating your choice of paper to present. Students who require visual aid instrumentation (i.e., lap top computer and data projector) are recommended to phone 220-3711 (Com Media).

Students should be aware that many of the readings they will be assigned may be of an unfamiliar nature and style. Students will be given sufficient time to allow for several reads of the assigned material

Evaluation

The University policy on grading and related matters is described in section F.2 of the 2017-2018 Calendar.

In determining the overall grade in the course, the following weights will be used:

Midterm exam	20 %	Feb 27, 2018	In-Class
Oral presentation	20 %		
Class Participation/Attendance	5 %		
Term paper	30 %		
Final Exam	25 %		

(There will be a final exam scheduled by the Registrar's office.)

No electronic or written aids (eg. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Non-programmable calculators will be permitted to answer quantitative questions on exams, if applicable, and permission to do this will be clearly indicated on the examination paper. Students should also read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.

A passing grade is required for the term paper.

A Note regarding Writing Assignments:

In keeping with the University of Calgary's emphasis on the importance of academic writing in student assignments (section E.2 of 2017-18 Calendar), this course relies heavily on writing and the grading thereof in determining a student's mark. Competency in writing is not the exclusive domain of the humanities and social sciences, nor does it solely mean accuracy in mechanics (grammar, spelling, punctuation). The University of Calgary offers a number of instructional services through the Students' Success Centre's Writing Support Services (<http://www.ucalgary.ca/writingsupport/>) for students seeking feedback on assignments or seeking to improve their general writing skills. Students are **strongly encouraged** to take advantage of these programs.

Grading Scheme:

A+ 95-100	B+ 80-84	C+ 68-71	D+ 56-59
A 90-94	B 76-79	C 64-67	D 50-55
A- 85-89	B- 72-75	C- 60-63	F 0-49

Missed Components of Term Work:

Students will lose 2 points per day late past the deadline for the term paper. Assignments will **NOT** be accepted more than 72 hours after the posted deadline and students failing to submit any assignment within this time frame will receive a mark of zero.

It is the agreement of all Faculty and Staff involved in MDSC561 that **extensions will NOT be granted** on the term paper. The only exceptions to this are those in keeping with the University Calendar (illness, religious conviction, or domestic affliction) that are received in writing and with supporting documentation.

Desire2Learn (D2L)

Desire 2 Learn is located on the University of Calgary server and will be used extensively for communication with students. **It is the student's responsibility to ensure that s/he gets all posted communications and documents and that s/he receives emails sent by instructors or fellow students through D2L.** You using an email address on the University server (name@ucalgary.ca) will ensure that you receive emails and that, should the server ever be down, instructors would be aware of it. Other

servers sometimes filter D2L or instructor group mailings as spam; **we therefore require that you have your ucalgary.ca email address linked to D2L.**

If you need help accessing or using D2L, please visit the Desire2Learn resource page for students: <http://elearn.ucalgary.ca/d2l-student/>.

Policies Governing the Course:

Attendance

Class Participation/Attendance forms 5% of the final grade in the course

Conduct During Lectures

Students are expected to conduct themselves in a mature and courteous manner during ALL lectures. Students are expected to frame their comments and questions to lecturers in respectful and appropriate language, always maintaining sensitivity towards the topic.

Students are expected to take notes during each session and should not rely solely on handout material supplied by the instructors.

Electronic Devices

The Bachelor of Health Sciences program aims to create a supportive and respectful learning environment for all students. Research studies have found that student use of electronic devices (laptops, tablets, etc) in the classroom negatively affects the learning of both the user and those sitting nearby. Inappropriate use of laptops is also disruptive to your fellow classmates and disrespectful to the lecturer. Their use in the classroom is **strongly discouraged** and may be prohibited by instructors except in circumstances related to course content. Should laptops be permitted, their use is limited to taking notes and **NOT to surf the web, check email or do other unrelated work**. Students who use their laptops inappropriately or are otherwise disruptive during lectures will be asked to leave. Repeat offences may be considered non-academic misconduct and disciplined accordingly.

Cell phones and similar devices **must be turned off** (not merely silent) during class time. Students who disregard this rule during lectures or tutorials will be asked to leave. These items are not permitted under any circumstance during exams/quizzes, etc.

Copyright

It is the responsibility of students and professors to ensure that materials they post or distribute to others comply with the Copyright Act and the University's Fair Dealing Guidance for Students (library.ucalgary.ca/files/library/guidance_for_students.pdf). Further information for students is available on the Copyright Office web page (<http://library.ucalgary.ca/copyright>)

A Note Regarding Instructor Intellectual Property

Generally speaking, course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the

professor(s). These materials may **NOT** be reproduced, redistributed or copied without the explicit consent of the professor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course *at the same time* may be allowed under fair dealing.

Academic Accommodations Based on Disability

It is the student's responsibility to register with Student Accessibility Services to be eligible for formal academic accommodation. If you are a student who may require academic accommodation and have not registered with Student Accessibility Services, please contact their office at (403) 220-8237; <http://www.ucalgary.ca/access/>. Students will be provided with all necessary accommodations to ensure equal opportunity to succeed in this course. Please provide the instructor your accommodation letter from Student Accessibility Services within 14 days after the start of this course so that all needed arrangements for exams and assignments can be made.

Accommodations on Protected Grounds other than Disability

Students who require an accommodation in relation to their coursework based on a protected ground other than disability, should communicate this need, preferably in writing, to the designated BHSc program contact, Mrs. Jennifer Logan (jljlogan@ucalgary), or to Dr. Ebba Kurz, Associate Dean, Undergraduate Health and Science Education, Cumming School of Medicine. Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

Academic Misconduct

The University of Calgary has created rules to govern all its members regarding the creation of knowledge and the demonstration of knowledge having been learned. These rules are contained principally in Sections J to L of the University of Calgary Calendar. This document also stipulates the penalties for violating these rules. Please know that the University and the Cumming School of Medicine take these rules seriously. The Cumming School of Medicine follows a zero tolerance policy regarding dishonesty. **All incidences of academic dishonesty, such as cheating and plagiarism, will be reported to the Associate Dean, Undergraduate Health and Science Education, Cumming School of Medicine for investigation; infractions will be noted on the record of a student found to be guilty.**

Recording of Lectures

Audio or video recording of lectures is prohibited except where explicit permission has been received from the instructor.

Other Important Information

Freedom of Information and Protection of Privacy Act

This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP) and students should identify themselves on written assignments (exams and term work.) by their name and ID number on the front page and ID on each subsequent page. Assignments given by you to your course instructor will remain confidential unless otherwise stated before submission. The

assignment cannot be returned to anyone else without your expressed permission to the instructor. Grades will be made available on an individual basis and students will not have access to other students' grades without expressed consent. Similarly, any information about yourself that you share with your course instructor will not be given to anyone else without your permission. See <http://www.ucalgary.ca/policies/files/policies/privacy-policy-2011.pdf> for more information

Appeals

If there is a concern with the course, academic matter or a grade, first communicate with the instructor. If these concerns cannot be resolved, students can proceed with an academic appeal, as per Section I of the University Calendar. Students must follow the official reappraisal/appeal process and should contact the Student Ombuds Office (<http://www.ucalgary.ca/provost/students/ombuds>) for assistance with this and with any other academic concerns, including academic and non-academic misconduct. Student should be aware that concerns about graded term work may only be initiated within 15 days of first being notified of the grade.

Resources for Support of Student Learning, Success, Safety and Wellness

Student Success Centre	http://www.ucalgary.ca/ssc/
Student Wellness Centre	http://www.ucalgary.ca/wellnesscentre/
Distress Centre	http://www.distresscentre.com/

Wellness and Mental Health Resources

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the excellent mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370 MacEwan Student Centre, <https://www.ucalgary.ca/wellnesscentre/services/mental-health-services>) and the Campus Mental Health Strategy (<http://www.ucalgary.ca/mentalhealth/>).

Student Ombuds' Office

The Student Ombuds' Office supports and provides a safe, neutral space for students. For more information, please visit www.ucalgary.ca/ombuds/ or email ombuds@ucalgary.ca

Student Union (SU) Information

The SU Vice-President Academic can be reached at (403) 220-3911 or suvpaca@ucalgary.ca; the SU representatives for the Cumming School of Medicine can be reached at medrep2@su.ucalgary.ca.

Emergency Evacuation/Assembly Points

Assembly points for emergencies have been identified across campus. Assembly points are designed to establish a location for information updates from the emergency responders to the evacuees; and from the evacuated population to the emergency responders. The primary assembly point for the Biological Sciences building is the Social Science – Food Court.

Safewalk

Campus security will escort individuals, day or night, anywhere on campus (including McMahon Stadium, Health Sciences Centre, Student Family Housing, the Alberta Children's Hospital and the University LRT station). Call 220-5333. Use any campus phone, emergency phone or the yellow phone located at most parking lot pay booths.

Class Schedule

The following is a list of topics for class, and assignment / exam due dates. Please note that unforeseen circumstances may cause changes to the schedule with respect to the timing of topics and readings. Students will be notified of all changes in a timely manner by way of email and D2L announcements. The exam dates are firm and will not be altered.

Date	Module / Topics	Instructor/Guest Lecturer	Assignments & Due Dates
January 09, 2018	Intro to Course	K. Lee	
January 11, 2018	Cell Cycle Control	K. Lee	
January 16, 2018	Cancer Epidemiology & Prevention	C. Friedenreich	
January 18, 2018	Oncogenes and Signal Transduction	R. Johnston	
January 23, 2018	Histopathology of Cancer	T. Ogilvie	
January 25, 2018	Student Presentation	K. Lee	
January 30, 2018	Tumor Suppressor Genes and Cancer	K. Riabowol	
February 01, 2018	Medicinal Chemistry in Cancer Drug Discovery	D. Derksen	
February 06, 2018	Infectious Disease and Cancer	S. Rosales	
February 08, 2018	Student Presentation	K. Lee	
February 13, 2018	Palliative Care	L. Galloway	
February 15, 2018	Student Presentation	K. Lee	
February 27, 2018	Mid-Term Exam	K. Lee	
March 01, 2018	Epigenetics and Cancer	M. Gallo	
March 06, 2018	Student Presentation	K. Lee	
March 08, 2018	Oncolytic Viruses	D. Mahoney	
March 13, 2018	Diet and Energy Balance in Cancer Prevention	Csizmadi	
March 15, 2018	Student Presentation	K. Lee	

March 20, 2018	Treatment of Cancer: Physician's Perspective	D. Heng	
March 22, 2018	Mechanisms of Senescence	K. Riabowol	
March 27, 2018	DNA repair and Cancer	G. Williams	
March 29, 2018	Cancer Stem Cells	D. Senger	
April 03, 2018	Tumor Immunology	F. Jirik	(Term paper due in class)
April 05, 2018	Student Presentation	K. Lee	
April 10, 2018	Transgenic mouse models of pediatric bone and soft tissue sarcomas	M Monument	
April 14-25, 2018	FINAL EXAM	K. Lee	