UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: January 2009
REVISED COURSE IMPLEMENTATION DATE: September 2022
COURSE TO BE REVIEWED (six years after UEC approval)**:** January 2028
Course outline form version: 05/18/2018

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: BIO 415	**Number of Credits:** 3 Course credit policy (105)

Course Full Title: Cancer Biology
Course Short Title:
(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)

Faculty: Faculty of Science	**Department (or program if no department):** Biology

Calendar Description:

Cancer biology examines the genetic, developmental and environmental basis of this disease, and explores current as well as future anti-cancer treatments. Topics to be covered include tumorgenesis, control of the cell cycle, the role of oncogenes, tumor suppressor genes, angiogenesis, metastasis, immunotherapy, and novel approaches to cancer treatment.

Prerequisites (or NONE):	BIO 201, BIO 202, and BIO 220.
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Antirequisite Courses *(Cannot be taken for additional credit.)*
Former course code/number:
Cross-listed with:
Dual-listed with:
Equivalent course(s):
(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar hours	33
Tutorials/workshops	12
Supervised laboratory hours	
Experiential (field experience, practicum, internship, etc.)	
Supervised online activities	
Other contact hours:	
Total hours	**45**

Labs to be scheduled independent of lecture hours: ☒ No ☐ Yes

Special Topics *(Double-click on boxes to select.)*
This course is offered with different topics:
☒ No ☐ Yes *(If yes, topic will be recorded when offered.)*

Independent Study
If offered as an Independent Study course, this course may be repeated for further credit: *(If yes, topic will be recorded.)*
☒ No ☐ Yes, repeat(s) ☐ Yes, no limit

Transfer Credit
Transfer credit already exists: *(See **bctransferguide.ca**.)*
☒ No ☐ Yes
Submit outline for (re)articulation:
☒ No ☐ Yes *(If yes, fill in transfer credit form.)*

Grading System
☒ Letter Grades ☐ Credit/No Credit

Maximum enrolment (for information only): 24

Expected Frequency of Course Offerings:
Every other year *(Every semester, Fall only, annually, etc.)*

Department / Program Head or Director: Gregory Schmaltz	**Date of meeting:**	October 1, 2021
Faculty Council approval	**Date of meeting:**	November 5, 2021
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	January 28, 2022

Learning Outcomes:

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

1. Discuss the various cellular pathways that lead to oncogenesis.
2. Analyze the common genetic mechanisms that lead to tumor formation.
3. Discuss how mutations in specific oncogenes modify cellular metabolism.
4. Explain how alterations in specific tumor suppressor genes lead to tumor formation.
5. Describe the role that the immune system plays in oncogenesis.
6. Evaluate common therapies including chemotherapy and immunotherapy.
7. Summarize current knowledge in an area of cancer biology.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion.)*

Lectures, demonstrations, small group practice, audio-visual presentation.

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials *(If more space is required, download Supplemental Texts and Resource Materials form.)*

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Weinberg	The Biology of Cancer	☒	Garland	2013
2.			☐		
3.			☐		
4.			☐		
5.			☐		

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Typical Evaluation Methods and Weighting

Final exam:	40%	Assignments:	%	Field experience:	%	Portfolio:	%
Midterm exam	20%	Project:(presentation)	20 %	Practicum:	%	Term paper:	20%
Quizzes/tests:	%	Lab work:	%	Shop work:	%	Total:	100%

Details (if necessary):

Typical Course Content and Topics

Nature of cancer
Tumor viruses
Cellular oncogenes
Growth factors and their receptors
Signaling circuitry
Tumor suppressor genes
Control of the cell cycle
Apoptosis, cell immortalization, and tumorigenesis
Angiogenesis and metastasis
Tumor immunology
Therapies and treatments