

Integrative Cancer Biology

Kinesiology 431

Section: D100

Term: 2013 Summer

Instructor: Dr. M.P. Rosin

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Discussion Topics: COURSE OVERVIEW: The purpose of this class is to introduce the student to core concepts in the field of carcinogenesis. Emphasis will be on the complex interactions of lifestyle factors, carcinogen exposure, genetic susceptibility, infection and dietary habits as determinants of cancer risk. Classwork covers topics ranging from the clinical basis of carcinogenesis to the molecular and cellular changes involved in cancer development. This course will provide the students with the background information and terminology that is central to the understanding of cancer as a chronic disease process that is potentially preventable. It also will provide students with a broad framework upon which they can interpret new knowledge on cancer development and assess its credibility.

COURSE FORMAT: The course will involve 2 hours of lecture and 1 hour of tutorial per week. When guest lectures are present, the lecture slot will be increased to 3 hours to allow students to interact with the lecturer.

TENTATIVE TOPICS:

Introduction-What is cancer?

Prevention of cancer through screening and early diagnosis

Clinical and histological classifications and staging of cancer

Cancer treatment and evaluation of outcome: the role of new technology

Epidemiological concepts-identifying the causes of cancer

Cancer as a multi-stage phenomenon: Initiation, promotion and progression events.

Chemical classification of carcinogens/mechanism of activation

Genetic predisposition to cancer/ DNA repair systems

Non-genetic contributors to cancer: epigenetic regulation and tumor microenvironment

Infection, inflammation and cancer

Biomarkers of exposure to carcinogens

Oncogenes-- contribution to uncontrolled cell proliferation and cancer

Suppressor genes/association of inactivation with cancer development

How cancer spreads - metastasis models

Breast cancer models and hereditary cancer

Prostate cancer models

Global strategies for cancer prevention: what can we do?

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Grading: GRADE:

Tutorials	10%
Assignment	20%
Mid-term	30%
Final	40%

Required Texts: RECOMMENDED TEXT: Lewis J. Kleinsmith. Principles of Cancer Biology. Pearson Benjamin Cummings, San Francisco (2006)

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: PREREQUISITIES: MBB231 (or MBB201) and at least 90 credit hours. Since topics discussed will focus on a multidisciplinary approach to cancer, a background understanding in cell biology and genetics as well as anatomy and toxicology is recommended.

Notes: Failure to attend an examination

Students who miss examinations due to exceptional circumstances (such as serious illness or compassionate reasons) are required to obtain a physician's certificate, whereby the physician states that you were unable to write your midterm or final on the set date due to a medical condition beyond your control, or other supporting documents in order to obtain consideration in the course. Such documents must be filed with the Dept. Chair (via the Biomedical Physiology and Kinesiology office) or Registrar within four calendar days of the date on which the examination was to have been written. Exceptional circumstances must be approved by the Undergraduate Program Committee in order for a student to receive consideration.

Students must check the exam schedule when making course selections. Students are reminded that final examinations may be scheduled at any time during the examination period and that students should avoid making travel or employment arrangements for this period.

Academic honesty and student conduct

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Academic honesty is a condition of continued membership in the University community.

Academic dishonesty, including plagiarism or any other form of cheating is subject to serious academic penalty, i.e. failure on an assignment, failure in a course, suspension or expulsion from the University.

The University codes of student conduct and academic honesty are contained in policies T10.01 and T10.02 which are available in the Course Timetable and on the Web via <http://www.reg.sfu.ca>.

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.