Bachelor of Health Sciences
HTH 3E03 Inquiry III

CELL GROWTH REGULATION
CLASS OFFERING: Term II, 2017-2018 Academic Year
             Wednesdays, 2:30 – 5:20 pm
             MDCL 3017

INSTRUCTOR:  Dr. Peter Whyte, Associate Professor
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LEARNLINK
The course uses Learn Link for communications and posting of material. Access to
LearnLink is required to take the course and students are responsible for monitoring
LearnLink weekly for communications that are relevant to the course.

COURSE DESCRIPTION
Over the past few decades, a wealth of information has been obtained concerning the
regulation of cellular growth. Scientific investigations have identified many genes that
are altered in expression or function in human cancer or developmental syndromes, and,
in many cases, the molecular functions of the encoded proteins have been characterized.
More recent years have seen the development of many new experimental therapeutic
compounds that target specific enzymes and biochemical pathways. These so-called
designer drugs are at various phases of development and clinical testing and some have
been approved for treatment of different types of cancer. While there is reason for
optimism for gains in the battle against cancer, many of the designer drugs have not been
as effective as anticipated due to tumour complexities and the emergence of resistant
forms of the tumours. The course will examine specific examples of genes that are
altered in cancer along with their molecular functions in controlling cellular growth.

The course will build on previous inquiry-based courses offered in first and second years
of the Bachelor of Health Sciences program. It will seek to further develop inquiry-based
skills to investigate and communicate a particular topic. The class will be divided into
small groups that will each choose a relevant topic in consultation with the course
instructor. The topics will include specific genes, pathways or processes that control
aspects of cellular proliferation and/or differentiation, as well as, the problems that arise
when hereditary or somatic mutations disrupt these processes. Initially, the investigation
will focus on the basic functions of the gene or pathway and then, subsequently, on its
role in cancer or other diseases. After reviewing the underlying science, students will
then embark on an investigation of how this scientific information can be used to treat
clinical disease and the obstacles that still need to be addressed.
Each group will make three presentations outlining their research outcomes. In the final part of the course, each student will have an opportunity to extend their inquiry, individually, into a short written paper on a relevant aspect of their investigation.

GOALS AND OBJECTIVES
1. Further develop skills in inquiry-based learning, including information gathering and integration and assessment of information from the scientific literature.
2. Further develop skills in working co-operatively as a part of a peer group.
3. Increase knowledge and understanding of principles of molecular and cell biology.
4. Learn and apply key concepts in the field of cell growth regulation.
5. Develop skills in using PubMed and primary scientific literature to gain a critical appreciation of a particular topic.
6. Further develop skills in written and verbal communication.

FORMAT
The course will include:

1. Lecture/discussion of introductory material (first 2 or 3 weeks)
   
   Topics:  
   - Hallmarks of Cancer  
   - New Therapeutic Approaches  
   - Cancer Genomics and Precision Medicine

2. Small group-based inquiry of topics
   Three group-based presentations with class discussions.
   
   Presentations:
   1st presentation – fundamental molecular biology of the gene or pathway chosen.
   2nd presentation – description of a specific disease, how the gene of interest contributes to the disease state and problems that it presents.
   3rd presentation – use of knowledge toward alleviating disease burden associated with the specific disease – both present and future.

   Each group will be responsible for posing a copy of their presentation online (LearnLink) 24 hours prior to their presentation.

3. Individually written investigations of a particular aspect (student’s choice) of molecular growth regulation.

EVALUATION
Group based inquiry – 60%. This will include peer evaluation within each group and peer evaluation from members of other groups of presentations.
Written Individual Perspective - 30
Participation in class discussions 10
POLICY REMINDERS:

1. **CHANGES TO COURSE DESCRIPTION OR SCHEDULE**
The instructor, program and the university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If modifications become necessary, reasonable notice and communication with the students will be given. Students will be provided with an explanation and an opportunity to comment. It is the responsibility of the student to check their McMaster email and the course website/LearnLink weekly during term. Any significant changes will be made in consultation with the BHSc Assistant Dean and with members of the class.

2. **ACADEMIC INTEGRITY**
You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results, or could result, in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads “Grade of F assigned for academic dishonesty”) and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to McMaster’s Academic Integrity Policy, located at [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity)

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which previous credit has been obtained. For more information on this topic, see [http://www.mcmaster.ca/academicintegrity/students/typeofad/plagiarism/index.html](http://www.mcmaster.ca/academicintegrity/students/typeofad/plagiarism/index.html)

2. Improper collaboration during group work.
3. Copying or using unauthorized aids in test and examinations.

In this course, we will be using a web-based service (Turnitin.com) designed to reveal plagiarism. Students will be required to submit their work electronically and in hard copy so that it can be checked for academic dishonesty. To see the Turnitin.com policy, please go to [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity)
ASSIGNMENT DEADLINES AND MISSED OR LATE WORK:
Students are expected to hand in all assignments on the specified due dates. Late submissions will be subject to a penalty of 20% per day (including weekends). Assignments submitted after class on the due date will be counted as one day late.

MCMASTER STUDENT ABSENCE FORM (MSAF):
This is an online, self-reporting tool for students to report absences due to minor medical situations that last up to 3 days and to request accommodation for any missed academic work that is worth less than 25% of the final grade. Please note that this tool cannot be used during any final examination period. It is the prerogative of the Instructors/Coordinator to determine the appropriate relief for missed term work. You may submit a maximum of one request per term. The form should be filled out immediately when you are about to return to class after your absence. It is your responsibility to follow up with your instructor immediately (within 2 working days) about the nature of the accommodation. If you are absent for more than 3 days, have missed academic work worth 25% or more, or exceed one request per term, you must see someone in the BHSc (Honours) Program office in MDCL-3308. You will be required to provide supporting documentation. All MSAFs should go to the Coordinator.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES:
Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone x28652 or email sas@mcmaster.ca. For further information, consult McMaster University’s Policy for Academic Accommodation of Students with Disabilities.

SUSTAINABILITY AND WRITTEN WORK:
The written work submission guidelines for this course have been chosen to support the more sustainable use of paper, energy and toner. Four levels of criteria have been developed by the Office of Sustainability and encouraged for adoption by professoors and faculties. The submission guidelines for this course meet the Platinum standard. All written work must be submitted in the following format: reduced line spacing, sans-serif font, and online submission and return. For more information about criteria for sustainable written work submissions, visit the Office of Sustainability website: www.mcmaster.ca/sustainability.