

CAPILANO UNIVERSITY COURSE OUTLINE	
Term: FALL 2013	Course No. BIOL 354
Course: MOLECULAR BASIS OF CHRONIC DISEASE	Credits: 3.0 Section:
Instructor: Office: Tel: email:	

COURSE FORMAT: This is an online course in which students have 15 weeks to complete all assignments and the mandatory examinations. Midterm and final examinations are to be written on campus at scheduled times, however, other arrangements can be made if necessary.

PRE-REQUISITES: Successful completion of 45 credits of post-secondary courses at the 100-level or higher.

NOTE:

The following courses and program are recommended as prerequisites:

- BIOL 112/113 **or**
- BIOL 110/111 with BIOL 213 **or**
- BIOL 104/113 with a minimum grade of C+ **or**
- HKIN 275 **or**
- RADP diploma

COURSE DESCRIPTION:

This course will provide an overview of the molecular pathology of selected chronic diseases. Topics covered include the physiological function of cardiovascular, pulmonary, metabolic, neuromuscular and immunological systems and the pathology underlying selected chronic diseases of these systems. The response of such systems to acute and chronic exercise as well as the link between physical inactivity and disease development and prevention will be examined.

COURSE OBJECTIVES:

General:

- To study selected human anatomy and physiology systems.
- To examine the anatomy and physiology of cardiovascular, respiratory, metabolic, musculoskeletal, endocrine and nervous systems, and inflammatory pathways and their physiological role in disease development and responses to exercise.

- Introduce the student to the effects of regular exercise on the development of selected chronic diseases.
- Special emphasis will be given to health preservation.
- To prepare students for further studies in Biology or the Health Sciences.

Instructional:

Upon successfully completing the course, the student should be able to:

- Demonstrate an understanding of the structure and function of the organ systems discussed in class;
- Use case studies to interpret results of laboratory tests used to measure physiological processes; and
- Demonstrate an understanding of the physiological basis of chronic disease as it relates to a sedentary lifestyle.

REQUIRED COURSE MATERIALS:**Textbook:**

McArdle, William D. et al. Exercise Physiology: Energy, Nutrition and Performance. Baltimore, MD: Lippincott, Williams and Wilkins, 2006.

Selected Readings:

Readings will be assigned throughout the term.

Recommended:

Marieb, Elaine N. and Katja Hoehn. Human Anatomy and Physiology, 8th ed. San Francisco: Benjamin Cummings, 2010.

Note: This text will contribute to your knowledge base of the diseases/disorders covered in this course. However, not all of the chapters within the text will be covered in this course.

Other Useful Texts:

Durstine, Larry, et al. American College of Sports Medicine's Exercise Management for Persons with Chronic Disease and Disabilities, 3rd ed. Baltimore, MD: Lippincott, Williams and Wilkins, 2009.

COURSE CONTENT:

Weeks	Topics	Text References
1	Introduction: Body parameters, homeostasis, homeostatic imbalance and disease	Chapter 6 and 7
2-4	Endocrine System, Inflammation and the Immune System	Chapter 20 and 9
5-7	Musculoskeletal System	Chapter 22-24
8-9	Cardiopulmonary and Vascular System	Chapters 12-17
10-11	Insulin sensitive tissues: muscle, fat and liver. Adipose tissue and visceral fat as an endocrine organ.	Chapter 30 and 31

Weeks	Topics	Text References
12-13	Insulin resistance, metabolic syndrome and type 2 diabetes mellitus	Chapter 30 and 31
14-15	Final Exam Period	TBA

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Quizzes (2)	20%
Midterm Exam	35%
Case Study	10%
Final Exam	35%
TOTAL	100%

Quizzes, the mid-term and final exam will include both multiple choice and essay-type questions. The final exam will be cumulative.

Students will be given a medical case study and will identify the condition or disease, basing diagnosis on identified risk factors and symptoms ascertained from the study. Students will then apply the principles of exercise physiology and its relation to chronic disease and prepare a working recommendation of how one might ameliorate unique disease pathologies, and such recommendations/findings will be written up as a technical report.

GRADING PROFILE:

Letter grades will be assigned according to the following guidelines:

A+ 88 - 100%	B+ 78 - 79%	C+ 68 - 69%	D 50 - 59%
A 83 - 87%	B 73 - 77%	C 63 - 67%	F 0 - 49%
A- 80 - 82%	B- 70 - 72%	C- 60 - 62%	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

OPERATIONAL DETAILS:**University Policies:**

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other educational issues. These and other policies are available on the University website.

- Attendance:** The student is responsible for all information presented, including times of examinations and assignment deadlines.
- Missed Exams:** Normally, a score of zero will be given for a missed exam, test, quiz, etc. In some **exceptional** situations, the student will be permitted to write a make-up test. The date and timing of any make-up option is at the discretion of the instructor.
- Options will only be offered to students if:
1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. A departmental "medical form" to be completed by both the student and his/her physician may be requested. A copy of the death certificate of a close family member may also be required.
- Reasons do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.
2. The student has notified the instructor (or the Pure and Applied Science office staff, if the instructor is not available) about the missed exam, test, quiz, etc. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, etc.
 3. Proof of the circumstances must be provided. Proper documentation of illness or injury requires a completed medical form (supplied by the department) by both the student and the physician. All documentation **must be submitted within 5 days** of the missed exam.
 4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, etc. **Fully participating means attending almost all classes and turning in all assignments in the course.**
- Final Exam Period:** Students should note that the final exam period is from **(insert date)** (including Saturday, (date)), and that they can expect to write exams at any time during this period. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.
- Cheating/Plagiarism:** Students caught cheating on a test will normally receive a grade of "F" on the course and may be expelled from the University. Plagiarism (including the copying of any part of assignments and essays) is a serious offence and is a form of cheating.

- Incomplete Grades:*** Incomplete grades ("I") are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare.
- Final Letter Grade:*** All registered students will receive a final letter grade unless they have officially withdrawn (see the University Calendar for the withdrawal date).
- Professionalism:*** Students should be able to demonstrate a professional attitude and behaviour: reliability, respect for and cooperation with colleagues, willingness to work calmly and courteously, respect for equipment and systems, and constructive response to criticism.
- English Usage:*** Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile. Please refer to the guidelines provided in the Capilano University Guide to written Assignments (available from the University Bookstore).
- Emergency Procedures:*** Please read the emergency procedures posted on the wall of the classroom.