

# BIOMEDICAL SCIENCE (BIOM)

## **BIOM\*6070 Pregnancy, Birth and Perinatal Adaptations Summer Only [0.50]**

This course promotes understanding of the physiology of the placenta, and its role in fetal, perinatal and adult health. It is offered through videoconference involving University of Guelph, Queen's University and University of Waterloo. Parts are customized to student's interests within pregnancy physiology.

**Restriction(s):** Restricted to Biomedical Science students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6100 Research Proposal in Biomedical Sciences Fall and Winter Reg Required [0.50]**

This is a 2 semester course (students must register for the course in each semester) focused on preparing students for their MSc defense while improving their critical thinking, oral communication skills and written communication skills. Students will submit a research proposal and present a seminar on their research proposal. Students will also write lay summaries on other student's seminars.

**Restriction(s):** Restricted to MSc Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6110 Research Methods in Biomedical Sciences Fall and Winter Reg Required [0.50]**

To provide a theoretical and practical introduction to basic and advanced laboratory techniques for graduate students in Biomedical Sciences. Routine and specialized procedures for light microscopy and various lab techniques, including but not limited to qPCR, protein assays, HPLC, Histology, cell culture and flow cytometry, are examined. Each technique is extensively examined through lectures, discussions and practical exercises. (This is a two semester course that begins in the Fall semester.)

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6130 Vertebrate Developmental Biology Unspecified [0.50]**

The principles of vertebrate development are examined through lectures, discussions and practical exercises. Topics include aspects of gametogenesis, fertilization, implantation, embryonic and fetal development and experimental manipulation of embryos. Emphasis is on mammalian development and topics may vary depending on student needs and interests.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6160 Cellular Biology Unspecified [0.50]**

An integrative course that examines aspects of cell biology in the context of recent research advancements. Topics are chosen based on student interest and faculty expertise and are explored through a combination of lectures, student seminars and group discussions.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6300 Cancer Biology: Basic Concepts and Research Tools Winter Only [0.50]**

Directed to students pursuing cancer research and based on two 1.5-hour lectures and a 2-hour tutorial per week, the general aim of this course is to familiarize students with general concepts in cancer biology and the most commonly used methodologies in cancer research. Apart from improving students' general understanding of cancer biology, the course seeks to enhance critical thinking, writing and oral presentation skills by means of a seminar presentation, weekly tutorial discussions and the preparation of two literature reviews. Offered in conjunction with BIOM\*4150. Extra work is required for graduate students.

**Restriction(s):** Credit may be obtained for only one of BIOM\*4150 or BIOM\*6300.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6310 Advanced Cancer Biology Fall Only [0.50]**

This course explores advanced topics in cancer biology including cancer etiology, detection and screening and therapeutic strategies. Students will also critically evaluate the scientific literature as well as cancer related articles disseminated to the general public.

**Restriction(s):** Instructor consent required.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6400 Critical Thinking in Medical Research Fall Only [0.50]**

This course will explore a variety of issues related to the scientific ideals and practical realities of research in the health sciences. Topics include critical thinking, critical appraisal of the medical literature (with emphasis on clinical trials), the principles of evidence-based medicine, and selected issues related to scientific integrity. Offered in conjunction with BIOM\*3210 and BIOM\*4210. Extra work is required for graduate students.

**Restriction(s):** Instructor consent required. Credit may be obtained for only one of BIOM\*3210, BIOM\*4210 or BIOM\*6400

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6490 Introduction to Drug Development Winter Only [0.50]**

Drug development is the process of integrating scientific data from several disciplines in order to demonstrate efficacy and safety of the new chemical entity for regulatory approval. This course will provide an overview of the drug development process including preclinical and clinical aspects of drug development.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

## **BIOM\*6570 Biochemical Regulation of Physiological Processes Unspecified [0.50]**

This course focuses on the regulation of vertebrate physiological processes, such as electrolyte and water balance, temperature regulation, growth and energy metabolism, by hormones and other biological regulators that act through cellular receptors and intracellular biochemical-control pathways.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6601 Special Topics in Reproductive Biology and Biotechnology Unspecified [0.25]**

Permits in-depth exploration of interdisciplinary aspects of biomedical research. Topics such as inflammation, reproductive immunology and neoplasia have been offered.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6602 Applied Reproductive Biotechnologies Fall and Winter Reg Required [0.50]**

The production of embryos in the laboratory requires considerable manual dexterity and expertise as well as theoretical knowledge and problem-solving skills. This is a 2-semester course consisting of laboratory training in bovine in vitro embryo production, seminars, field trips, group discussions and the placement in IVF clinics.

**Restriction(s):** Instructor consent required.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6610 Vascular Biology Unspecified [0.50]**

An interdisciplinary course in which the interrelationships between vascular proteins, cellular elements and the maintenance of vascular integrity are examined. Structural-functional relationships in vascular biology are explored through seminar presentations, group discussions and small group participation in problem based examples of vascular dysfunction.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6701 Special Topics in Development, Cell and Tissue Morphology Unspecified [0.25]**

Permits further in depth study of developmental and morphological sciences.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6702 Special Topics in Development, Cell and Tissue Morphology Unspecified [0.50]**

See BIOM\*6701

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6712 Special Topics in Physiology and Biochemistry Unspecified [0.50]**

This course involves an appropriate combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed according to the student's requirements.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6721 Special Topics in Pharmacology-Toxicology Unspecified [0.25]**

This course will comprise a combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed based on the student's requirements. Topics could include clinical pharmacology/toxicology, pharmaco-epidemiology/economics, gerontological or perinatal pharmacology and toxicokinetics.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6722 Special Topics in Biomedical Pharmacology-Toxicology Unspecified [0.50]**

See BIOM\*6721

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6800 Gene Expression in Health and Disease Winter Only [0.50]**

This course presents the molecular concepts of gene expression and the functional consequences of abnormal expression in pathological conditions. The conceptual, methodological and applied aspects of gene expression will be illustrated through student and faculty seminars, written reports, group discussions, and debates.

**Restriction(s):** Restricted to Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6900 Research Project in Biomedical Sciences Summer, Fall, and Winter [1.00]**

This course is a lab- or literature review-based, one-semester research project course for students in the course-based Master of Biomedical Sciences (MBS). As part of this course, students will complete a research paper and grant proposal pertaining to the research topic as well as a poster presentation of the project.

**Restriction(s):** Restricted to Master of Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6910 Practicum in Biomedical Sciences Summer Only [1.00]**

This is a one-semester practicum project course for students in the Master of Biomedical Sciences (MBS) program. Students receive applied training by working in a host organization or agency for a 12- to 14-week period, focusing on a major project of significance to the host.

**Restriction(s):** Restricted to Master of Biomedical Sciences students.

**Department(s):** Department of Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6920 Comparative Stem Cell Biology and Regenerative Medicine Winter Only [0.50]**

The emerging field of translational regenerative medicine is explored in depth through a series of seminars, discussions, literature review and oral presentations. Specific topics include regenerative therapies for osteoarthritis, cell-based therapies in non-traditional model species, biomaterials, and novel therapeutic applications in veterinary medicine.

**Restriction(s):** Instructor consent required

**Department(s):** Biomedical Sciences

**Location(s):** Guelph

**BIOM\*6930 Concepts in Human Regenerative Medicine Fall and Winter  
Reg Required [1.00]**

This course provides a broad overview of the field of human regenerative medicine (RM), including cell-based disease models, emerging technologies, clinical applications and ethical, commercial and regulatory challenges to moving stem cell therapies from the lab to the clinic.

**Restriction(s):** Instructor consent required.

**Department(s):** Biomedical Sciences

**Location(s):** Guelph