

BIOM2000 Concepts in Human Physiology- Winter 2014

Course Introduction

The course explores the manner in which the physiological systems, such as the respiratory system, renal system and digestive system function, and examines how these systems are integrated under the control of the nervous and endocrine systems.

A central theme of the course is **homeostasis**, which is the maintaining of the physical and chemical composition of blood within strict limits that allow cells to function adequately. Similarly, the course explores the relationship between the **form** and the **function** of physiological systems; this is an extremely important concept, because the way in which an organ, such as the kidney, functions is entirely dependent on its gross and microscopic anatomy.

Physiology is one of the core disciplines in contemporary medicine, and other health professions. Advances in the recognition and treatment of disease states, the development of therapies to treat disease, and the development of programs to promote healthy lifestyles in people at all stages of their lives, have all been based on advances in our understanding of the fundamental concepts of human physiology.

Course Overview, Goals & Learning Objectives

In order to make good decisions about our health and lifestyle we need to have a working knowledge of the way in which our body works at all stages of our life, from our childhood to our mature years; our physiology changes as we go through the various stages of our lives. Equally important is that ongoing scientific research continues to increase the level of our understanding of our physiology; this course is intended to help you understand how your body works, understand how your body copes with the many environmental challenges that you face every minute of your life, and provide you with the background that will allow you to understand the significance of new developments in physiology that are relevant to your health and well-being. The course is intended to provide you with the intellectual tools and background that you will need.

Human beings are mammals that live in a terrestrial environment. Our anatomy and physiology are adaptations that allow us to survive on land, deal with changes in our environment, and allow us to obtain the materials of life, such as oxygen, water and nutrients to sustain cellular functions. The course content is designed to introduce you to key concepts and the complex processes that allow our species to survive, and reproduce, in a terrestrial environment. The following lists more specific course goals that will assist you to enhance your understanding of:

- The fundamental grammar of the physiological discipline; key words will be given to guide you through each unit of the course.
- The concept of homeostasis, namely maintaining the relative constancy of blood

so that cell function can be sustained; the concept of homeostasis is the underpinning of contemporary physiological theory and practice.

- The basics of cell structure and function, namely the fundamental chemicals of life, the generation of energy by cells, the properties and functions of cell membranes, and the processes by which essential compounds move across membranes.
- The concept of electrical potentials of membranes, and the electrical properties allow nerve and muscle cells to function.
- The networking of cells to form complex organ systems such as the brain and nervous system.
- The anatomy and physiology of the major physiological systems that are involved in water and electrolyte balance, the acquisition of nutrients, the elimination of excretory products and other toxicants from your body tissues, and the regulation of body temperature.
- The physical and physiological principles of blood circulation, and transport of oxygen and carbon dioxide by blood.
- The nature of hormones and their roles in regulating and integrating many aspects of cell, tissue and organ function.
- The structure and function of the male and female reproductive systems; the production of gametes, fertilization, pregnancy, child birth and lactation.

Learning Objectives:

Detailed learning objectives will be provided for each Unit of the course; as far as possible, each unit will build on the knowledge gained in previous units, developing a pyramid of knowledge within and between each unit. At the end of the course, the intent is that you will:

- Understand the relationship between the major organ systems and the circulatory system in maintaining blood homeostasis.
- Understand the relevance of the regulatory systems (nervous and endocrine) in integrating the physiological processes of cells, tissues, and organs in the functioning whole body.
- Understand the fundamental and concepts relating to the reproduction of the human species.
- Develop an appreciation of the complexity and beauty of the physiological processes that we associate with life.

Organization and Sequence of Course Content (Top)

Unit 1: Introduction to physiology, homeostasis and cell structure

Unit 2: The nervous system

Unit 3: Muscles

Unit 4: Blood and blood circulation

Unit 5: Body defenses

Unit 6: Lungs and gas exchange

Unit 7: Kidneys, water regulation, electrolyte regulation and excretion

Unit 8: Intestinal tract, digestion, absorption and metabolism

Unit 9: Regulation of cell, tissue and organ function by hormones

Unit 10: Reproduction and embryo development

Required Materials (Top)

The textbook and CD-ROM:

The textbook, *Essentials of Human Anatomy and Physiology*, 10th Edition (2012) by E. N. Marieb is required and is essential for the course. Virtually all of the images that are used in the course material are taken from the textbook, and the copyright for use of the images belongs to the publisher, Pearson/Benjamin Cummings.

Book Store:

<http://www.bookstore.uoguelph.ca/>

Co-op Book store:

<http://www.guelphcampus.coop/>

The CD-ROM supplied with the textbook contains animation and self-evaluation quizzes for each chapter; the animations are useful illustrations of some of the basic concepts that will be used in the course. In addition, you will be able to access the publisher's website (www.anatomyandphysiology.com/) to obtain additional learning materials, including additional self quizzes for each section of the course.

The Learning Environment (Top)

To help you to reach the course objectives you will have access to the following support materials and activities:

- The course materials including narrated slides with written transcripts provided
- Animations on the CD-ROM
- A list of key words for each Unit of the course
- Review questions associated with each Unit from the textbook
- Banks of sample questions to review for self-testing and learning enhancement (the same test bank will be used for purposes of the Midterms)
- Access to the discussion area answers to those questions with others

Online Learning Expectations (Top)

This course website will be your learning environment for this course. This is an interactive online course, which differs from traditional courses in that it requires more structure and pacing. To successfully complete this course it is essential that you begin work as of the first week of classes and participate regularly throughout the semester.

In general, this course requires 6 - 8 hours of online access and individual work per week.

Technical Expectations and Requirements

You are expected to have an understanding of Internet and email basics. You will be navigating and searching the Internet and corresponding with others in your class using web-based conferencing and email.

Please ensure that your computer system meets the [minimum requirements](#).

If you do not have these technical requirements, consider either upgrading your personal computer, or using a machine on campus. Trying to use someone else's computer for the course may prove to be frustrating and difficult.

Please follow this quick [System Check](#) to determine if you have the right setup. (Results will be displayed in a new browser window).

Policies and Resources (Top)

Distance Education and Open Learning Program Handbooks

Degree Credit Students:

Please ensure that you have reviewed the [DE Handbook](#). In particular, ensure that you review the sections that pertain to Assignment Submissions and Returns, Online Quizzes or Tests and Final Examinations.

Open Learning program Students:

Please ensure that you have reviewed the [Open Learning program Handbook](#) for the

specific procedures and policies related to your studies through Open Learning and Educational Support.

Email Communication

Degree Credit Students:

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Open Learning program students *without* a University of Guelph email account:

Check your email account (the account your provided upon registration) regularly for important communications, as this is the primary conduit by which the Open Learning and Educational Support will notify you of events, deadlines, announcements or any other official information.

When You Cannot Meet Course Requirements

Degree Credit Students:

When you find yourself unable to meet an in-course requirement due to illness or compassionate reasons, please advise your course instructor **in writing**, with your name, ID number and email contact. See the [Undergraduate Calendar](#) for information on regulations and procedures for Academic Consideration.

Open Learning program Students:

Please refer to the [Open Learning program Handbook](#).

Drop Date

Degree Credit Students:

The last date to drop one-semester courses, without academic penalty, is indicated in the **Schedule** section of this course website. See the [Undergraduate Calendar for regulations and procedures for Dropping Courses](#)

Open Learning program Students:

Please refer to the [Open Learning program Handbook](#).

Copies of Assignments

Keep paper and/or other reliable back-up copies of all assignments: you may be asked to resubmit work at any time.

Accessibility

Degree Credit Students:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible. For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: [Centre for Students with Disabilities](#)

Open Learning program Students:

Students with disabilities requiring special accommodation for tests during the semester or for final exams shall contact the [Open Learning and Educational Support Program Counsellor](#) before the end of the first week of classes to ensure that appropriate support can be arranged. If contact is not made by this time, support may be delayed. Students will be asked to provide documentation from a health professional or from their home institution. Please note all information provided is held in confidence.

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The [Academic Misconduct Policy](#) is detailed in the Undergraduate Calendar.

Acceptable Use

The University of Guelph has an [Acceptable Use Policy](#), which you are expected to adhere to.

Resources

Degree Credit Students:

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations, which apply to undergraduate, graduate and diploma programs. [See Academic Calendars](#)

Open Learning program Students:

The [Open Learning program Handbook](#) is the source for information about policies and regulations.

A Guide to Using the Website (Top)

- The website is a central part of the course. It connects you to your instructors, allows you to interact with other course participants, and provides guidance and advice.
- Ideally, the discussion area will create a non-threatening, learner-centered environment where you can interact with other students and your instructor; this will benefit your understanding and overall learning experience.
- Think of the website as your virtual classroom, and get used to coming to class on a regular basis. Log on to the course website as often as needed to keep up with discussions and developments.

Course Evaluation (Top)

The evaluation of competency and familiarity with the course content will be based on completion of two compulsory term examinations that you will take on-line, assessment of your involvement in on-line discussion groups, and a final proctored examination. Midterm examinations 1 and 2 will deal with the course material from Units 1 to 3, and 4 to 6, respectively. The final examination will cover all of the course material, with the main emphasis on material covered in Units 7 to 10 and the remainder from Units 1 to 6.

Mark allocation:

Grade Activity	Weight
Midterm examination 1 (on-line)	15%
Midterm examination 2 (on-line)	15%
Weekly Quizzes	20%
Final examination	50%

Total Mark	100%

Midterm Examinations

- For the Midterm examinations, the exact period during which the examination will be accessible will be announced on the Coursework page.
- Each Midterm examination must be completed in a single session within that allocated time period. The quiz will be submitted automatically when the user performs an action after the time period has expired.
- If there are extenuating circumstances (based on health or compassionate grounds) that do not allow you to take a Midterm examination within the allocated times, you may request permission to transfer the marks to the Final examination (i.e., the Final examination may be worth 65% or 80% if you do not write either or both of the Midterm examinations).
- To request this privilege you must inform the course Instructor either before the examination period, or within 2 days after the examination period, providing the reasons for the request; confirmatory documentation might be required. Failure to do so will result in a zero mark being assigned for that examination.
- The mark that you have received for each Midterm examination will be made available immediately after completion of the examination; the correct answers will be made available within 48 hours of the end of the allocated examination period.

About Weekly Quizzes

An Important Part of This Course

The quizzes are worth 20% of your grade and are designed to keep you on track with the material. Note that you will see similar questions on your midterms and examinations so you should treat these similarly. There will be 10 quizzes in total, however the minimum requirement is 8 completed quizzes. This will allow students to miss 2 quizzes throughout the semester if their schedules are busy with other courses. You can also complete all of the quizzes and the computer will take the highest 8/10 grades to count towards the 20%.

Evaluating the Quizzes

All of the quizzes will be multiple choice questions and on average you will be given a minute per question (plus a little extra) to complete them. The limited time means that you are expected to have prepared for the quizzes because you will not have enough time to look content up as you go. They will be graded by the computer and you will receive a grade after the quiz period has ended.

Final Examination

- **A passing grade (25/50) is required in the Final examination for a pass mark for the course to be assigned.**
- **Students who fail the final examination will receive that failing mark for the course; for example, if the mark for your final examination is 35% that will be the grade given for the course.**
- To prepare for the final examination, which will be written without the aid of notes or other support materials, students are strongly advised to carry out the test quizzes (that will be available throughout the semester) without referring to course notes or textbooks.

The examination period can be found through [Web Advisor](#).

Unless you return a completed [Final Examination Information Sheet](#), we will assume that you will come to the University of Guelph to write your final examination.

It is the responsibility of any student living outside Canada to secure an approved examination site and invigilator. (An invigilator must be a representative from a university, college or school in either an academic or administrative role. A representative of an Embassy or Consulate is also acceptable.) For more information, please contact the DE Examination Coordinator, 519-824-4120 ext. 56776 or olexams@OpenEd.uoguelph.ca.

Getting Your Marks

As your assignments are marked you can view your grades on the course home page by clicking on the "Grades" option on the course menu bar.

[Problems, Questions, Comments \(Top\)](#)

Course Related

Instructor:

Nicole Campbell
ncampb09@uoguelph.ca

TA's:

Jacqueline Ferris
ferrisj@uoguelph.ca

Distance Education

Technical Support:

Open Learning and Educational Support
University of Guelph
519-824-4120 ex. 56939
Toll-Free (Can/U.S.): 1-866-275-1478
Room 211 Day Hall
help@OpenEd.uoguelph.ca

General Inquiries:

Open Learning and Educational Support
University of Guelph
(519) 824-4120 ex. 55000
Room 160 Johnston Hall
info@OpenEd.uoguelph.ca