Instructor Contact

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Course Information

Course Title: Concepts in Human Physiology
Pre-Requisites: None
Co-Requisites: None
Restriction(s): ANSC*3080, BIOM*3100, BIOM*3200, HK*3940, ZOO*3200, ZOO*3210.
Not available to BSC students in biological science specializations or BAS program.
Credits: 0.50
Course Website (If applicable): CourseLink
Method of Delivery: Distance Education, Fully Online

Calendar Description

This is an introductory course that examines the fundamental integrative aspects of human physiological systems and their role in the maintenance of homeostasis. Course content is intended to serve the needs of non-bioscience students and includes the study of aspects of cellular metabolism, nerve and muscle function and general anatomy and function of the cardiovascular, respiratory, gastrointestinal, immune,
central and peripheral nervous, endocrine, renal and reproductive systems. This course cannot be used to fulfill requirements for any biological science minor.

Course Description

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.

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, childbirth and lactation.

Course Learning Outcomes

By the end of the course, you should be able to:

- 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.

About Your Instructor

My name is Dr. Laura Graham and I'll be your instructor for Concepts in Human Physiology this semester. I have a PhD in mammalian physiology and I have taught numerous undergraduate courses in biology and physiology at the University of Guelph for the past several years. I hope you enjoy this course and please do not hesitate to contact me with any questions or concerns.
Method of Learning

Course Structure

The course is comprised of 12 units titled as follows:

Unit 1: Introduction to physiology
Unit 2: The nervous system
Unit 3: Muscles
Unit 4: Circulation and blood
Unit 5: Body defenses
Unit 6: Respiratory system
Unit 7: Urinary system
Unit 8: Digestive system
Unit 9: Endocrine system
Unit 10: Reproductive system

Learning Resources

Required Textbook(s)

Title: Essentials of Human Anatomy and Physiology
Author(s): E.N. Marieb
Publisher: Pearson Canada Inc. publishing as Benjamin Cummings, San Francisco
ISBN: 9780321918758

You may purchase the textbook(s) at the University of Guelph Bookstore or the Guelph Campus Co-op Bookstore.

eReserve

For this course you will be required to access electronic resources through the University of Guelph McLaughlin Library. To access these items visit the eReserve link in the top navigation bar. Note that you will need your Central Login ID and password in order to access items on reserve.

For further instructions on accessing reserve resources, visit How to Get Course Reserve Materials.

If at any point during the course you have difficulty accessing reserve materials, please contact the e-Learning and Reserve Services Staff at:
Schedule: Weeks 1 & 2

Unit 01: Introduction to Physiology

Required Reading

Textbook:

Chapter 1: 7-9, 12-13; Chapter 2: 38-55; Chapter 3: 62-80; Chapter 7: 229-237

Assignments

Quiz 1
Schedule: Week 3

Unit 02: The Nervous System

Required Reading

**Textbook:**

Chapter 7: 225-229, 237-250, 264-269

Assignments

Quiz 2
Schedule: Week 4

Unit 03: Muscles

Required Reading

Textbook:

Chapter 6: 181-195

Assignments

Quiz 3
Schedule: Week 5

Unit 04: Circulation and Blood

Required Reading

Textbook:

Chapter 10: 337-347; Chapter 11: 356-367, 370-373, 389-390; Chapter 12: 398-400

Assignments

Midterm 1

Quiz 4
Schedule: Week 6

Unit 05: Body Defenses

Required Reading

Textbook:

Chapter 4: 109-114; Chapter 12: 398-422

Assignments

Quiz 5
Schedule: Week 7

Unit 06: The Respiratory System

Required Reading

Textbook:

Chapter 13: 436-452

Assignments

Quiz 6
Schedule: Week 8

Unit 07: The Urinary System

Required Reading

Textbook:

Chapter 15: 511-531

Assignments

Midterm 2
Quiz 7
Schedule: Week 9

Unit 08: The Digestive System

Required Reading

*Textbook:*

Chapter 14: 463-473, 476-485, 487-497

Assignments

Quiz 8
Schedule: Week 10

Unit 09: The Endocrine System

Required Reading

Textbook:

Chapter 9: 308-330

Assignments

Quiz 9
Schedule: Week 11

Unit 10: The Reproductive System

Required Reading

Textbook:

Chapter 16: 538-561

Assignments

Quiz 10
Schedule: Week 12

Review

Assignments

Review Unit and Quizzes in Preparation for Final
Course Evaluation

The grade determination for this course is indicated in the following table.

Table 1: Course Evaluation

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Examination 1 (online)</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Examination 2 (online)</td>
<td>15%</td>
</tr>
<tr>
<td>Weekly Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Course Policies

Expectations

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

- The course materials including images from your textbook, detailed explanations and learning activities
- Animations and videos online
- Review questions with each Unit from the textbook
- Weekly graded quizzes designed to keep you on top of material and prepare you for the midterms and final examination (same question format will be used on all tests)
- Access to the discussion area to ask questions and to share answers to those questions with other

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.

- 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.

**Technical Requirements**

Students are responsible for ensuring that their computer system meets the necessary specific technical requirements of their program.

**Technical Support**

If you need any assistance with the software tools or the website, contact the Open Learning and Educational Support (OpenEd) Help Desk.

Open Learning and Educational Support  
University of Guelph  
Day Hall, Room 211  

Email: help@OpenEd.uoguelph.ca  
Tel: 519-824-4120 ext. 56939  
Toll-Free (CAN/USA): 1-866-275-1478  

**Hours of Operation (Eastern Time):**  
Monday - Friday: 8:30am – 8:30pm  
Saturday: 10:00am – 4:00pm  
Sunday: 12:00pm – 6:00pm  

**Policies and Procedures**

As a student of the University of Guelph, it is important for you to understand your rights and responsibilities and the academic rules and regulations that you must abide by.

If you are a registered University of Guelph Degree Student, consult the Undergraduate Calendar for the rules, regulations, curricula, programs and fees for current and previous academic years.

If you are an Open Learning Program Student, consult the Open Learning Program Calendar for information about University of Guelph administrative policies, procedures and services.
Email Communication

University of Guelph Degree 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

Check your email account (the account you 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

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.

University of Guelph Degree Students

Consult the Undergraduate Calendar for information on regulations and procedures for Academic Consideration.

Open Learning Program Students

Please refer to the Open Learning Program Calendar for information on regulations and procedures for requesting Academic Consideration.

Drop Date

University of Guelph Degree 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 Calendar.
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

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.

University of Guelph Degree Students

Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email SAS or visit the SAS website.

Open Learning Program Students

If you are an Open Learning program student who requires academic accommodation, please contact the Academic Assistant to the Director. Please ensure that you contact us before the end of the first week of your course (every semester) in order to avoid any delays in support. Documentation from a health professional is required for all academic accommodations. Please note that all information provided will be held in confidence.

If you require textbooks produced in an alternate format (e.g., DAISY, Braille, large print or eText), please contact the Academic Assistant to the Director at least two months prior to the course start date. If contact is not made within the suggested time frame, support may be delayed. It is recommended that you refer to the course outline before beginning your course in order to determine the required readings.

The provision of academic accommodation is a shared responsibility between OpenEd and the student requesting accommodation. It is recognized that academic accommodations are intended to “level the playing field” for students with disabilities.

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.

Copyright Notice

All content within this course is copyright protected. Third party copyrighted materials (such as book chapters and articles) have either been licensed for use in this course, or have been copied under an exception or limitation in Canadian Copyright law.

The fair dealing exemption in Canada’s Copyright Act permits students to reproduce short excerpts from copyright-protected materials for purposes such as research, education, private study, criticism and review, with proper attribution. Any other copying, communicating, or distribution of any content provided in this course, except as permitted by law, may be an infringement of copyright if done without proper license or the consent of the copyright owner. Examples of infringing uses of copyrighted works would include uploading materials to a commercial third party web site, or making paper or electronic reproductions of all, or a substantial part, of works such as textbooks for commercial purposes.

Students who upload to CourseLink copyrighted materials such as book chapters, journal articles, or materials taken from the Internet, must ensure that they comply with Canadian Copyright law or with the terms of the University’s electronic resource licenses.

For more information about students’ rights and obligations with respect to copyrighted works, see Fair Dealing Guidance for Students.
Grades

The assignment of grades at the University of Guelph is based on clearly defined standards, which are published in the Undergraduate Calendar for the benefit of faculty and students.

Grading System

In courses, which comprise a part of the student's program, standings will be reported according to the following schedule of grades:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>90-100</td>
</tr>
<tr>
<td>A</td>
<td>85-89</td>
</tr>
<tr>
<td>A-</td>
<td>80-84</td>
</tr>
<tr>
<td>B+</td>
<td>77-79</td>
</tr>
<tr>
<td>B</td>
<td>73-76</td>
</tr>
<tr>
<td>B-</td>
<td>70-72</td>
</tr>
<tr>
<td>C+</td>
<td>67-69</td>
</tr>
<tr>
<td>C</td>
<td>64-66</td>
</tr>
<tr>
<td>C-</td>
<td>60-62</td>
</tr>
<tr>
<td>D+</td>
<td>57-59</td>
</tr>
<tr>
<td>D</td>
<td>53-56</td>
</tr>
<tr>
<td>D-</td>
<td>50-52</td>
</tr>
<tr>
<td>F</td>
<td>0-49</td>
</tr>
</tbody>
</table>

Statement of Students’ Academic Responsibilities

Your success as a student depends above all on your own response to the opportunities and responsibilities that the university environment provides. The University of Guelph is committed to supporting you in your intellectual development and responding to your individual needs. To this end, a broad network of advising, counselling, and support services is provided to assist you in meeting your personal and academic goals.

For more information on your responsibilities as a student, see Statement of Students’ Academic Responsibilities.

Plagiarism Detection Software

Students should be aware that faculty have the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion from the University can be imposed.
Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Religious Holidays

Should a student need to miss scheduled tests, mid-term examinations, final examinations, or requirements to attend classes and participate in laboratories for religious reasons, please advise the instructor within two weeks of the distribution of this course outline so that alternate arrangements can be made.