Unit Outline

BIOL2002 Physiology for Nutrition
Semester 2, 2016

Unit study package code: BIOL2002
Mode of study: Internal
Tuition pattern summary: Note: For any specific variations to this tuition pattern and for precise information refer to the Learning Activities section.
Lecture: 2 x 1 Hours Weekly
Science Laboratory: 1 x 3 Hours Weekly
This unit does not have a fieldwork component.

Credit Value: 25.0
Pre-requisite units: 1644 (v.0) Human Biology 134 or any previous version
OR
313399 (v.0) Integrated Systems Anatomy and Physiology 100 or any previous version
OR
HUMB1001 (v.0) Integrated Systems Anatomy and Physiology or any previous version
AND
313230 (v.0) Principles of Biochemistry 283 or any previous version
OR
BCCB2003 (v.0) Principles of Biochemistry or any previous version

Co-requisite units: Nil
Anti-requisite units: Nil
Result type: Grade/Mark
Approved incidental fees: Information about approved incidental fees can be obtained from our website. Visit fees.curtin.edu.au/incidental_fees.cfm for details.

Unit coordinator: Title: Dr
Name: Rhiannon Halse
Phone: (08) 9266 9555
Email: Rhiannon.Halse@curtin.edu.au
Location: Building: 400 - Room: 353
Consultation times: By appointment

Teaching Staff: Name: Rhiannon Halse
Phone: (08) 9266 9555
Email: Rhiannon.Halse@curtin.edu.au
Location: Building: 400 - Room: 353
Name: Emily Calton
Phone: 08 9266 7497
Email: Emily.Calton@curtin.edu.au
Acknowledgement of Country
We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present.

Syllabus
Aspects of human physiology that support the study of nutrition: cells and their environment; gas transport and capillary exchange; intercellular communication; the autonomic nervous system; digestion and energy balance; body fluid homeostasis; water, electrolyte and acid-base balance; endocrine mechanisms and control; metabolic rate, blood glucose level and fuel metabolism, stress response, calcium metabolism, growth.

Introduction
Welcome to BIOL2002 Physiology for Nutrition.
This unit builds on the knowledge gained in the first year units Human Structure and Function and Integrated Systems Anatomy and Physiology. The content focuses on the physiology of homeostasis, adaptation and cellular nutrition with an emphasis on intercellular communication and control of physiological function.

Unit Learning Outcomes
All graduates of Curtin University achieve a set of nine graduate attributes during their course of study. These tell an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and attributes which employers say would be useful in a professional setting. Each unit in your course addresses the graduate attributes through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes tell you what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your achievement of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

Your course has been designed so that on graduating we can say you will have achieved all of Curtin’s Graduate Attributes through the assurance of learning process in each unit.

<table>
<thead>
<tr>
<th>On successful completion of this unit students can:</th>
<th>Graduate Attributes addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Integrate knowledge of cell physiology, and the physiology of the nervous and endocrine systems and apply this in explaining mechanisms of intercellular communication and coordination of physiological function.</td>
<td>☑️</td>
</tr>
<tr>
<td>2 Explain the physiological mechanisms that maintain nutrient and oxygen supply and remove cellular wastes, and predict responses to changing conditions</td>
<td>☑️</td>
</tr>
<tr>
<td>3 Explain the significance of changes to fluid and electrolyte balance and to acid-base balance, and analyse the mechanisms that restore homeostasis</td>
<td>☑️</td>
</tr>
<tr>
<td>4 Generate, analyse and present physiological data accurately and draw conclusions from them</td>
<td>☑️</td>
</tr>
</tbody>
</table>

Faculty of Health Sciences
School of Public Health

<table>
<thead>
<tr>
<th>Location:</th>
<th>Building: 400 - Room: 358</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative contact:</td>
<td>Name: School of Public Health Student Support Office</td>
</tr>
<tr>
<td></td>
<td>Phone: +61 8 9266 7927</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:PHealthStudentSupport@curtin.edu.au">PHealthStudentSupport@curtin.edu.au</a></td>
</tr>
<tr>
<td></td>
<td>Location: Building: 400 - Room: 310</td>
</tr>
<tr>
<td>Learning Management System:</td>
<td>Blackboard (lms.curtin.edu.au)</td>
</tr>
</tbody>
</table>

On successful completion of this unit students can:

1. Integrate knowledge of cell physiology, and the physiology of the nervous and endocrine systems and apply this in explaining mechanisms of intercellular communication and coordination of physiological function.
2. Explain the physiological mechanisms that maintain nutrient and oxygen supply and remove cellular wastes, and predict responses to changing conditions.
3. Explain the significance of changes to fluid and electrolyte balance and to acid-base balance, and analyse the mechanisms that restore homeostasis.
4. Generate, analyse and present physiological data accurately and draw conclusions from them.
Curtin’s Graduate Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Skills</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply discipline knowledge</td>
<td>Thinking skills</td>
<td>Information skills</td>
</tr>
<tr>
<td></td>
<td>(use analytical skills to solve problems)</td>
<td>(confidence to investigate new ideas)</td>
</tr>
<tr>
<td>Communication skills</td>
<td>Technology skills</td>
<td>Learning how to learn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(apply principles learnt to new situations)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(confidence to tackle unfamiliar problems)</td>
</tr>
<tr>
<td>International perspective</td>
<td>Cultural understanding</td>
<td>Professional Skills</td>
</tr>
<tr>
<td>(value the perspectives of others)</td>
<td>(value the perspectives of others)</td>
<td>(work independently and as a team)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(plan own work)</td>
</tr>
</tbody>
</table>

Find out more about Curtin’s Graduate attributes at the Office of Teaching & Learning website: ctl.curtin.edu.au

Learning Activities

**Lectures:** present the big picture, indicating scope and level of detail expected. Difficult concepts are explained and new material is integrated with existing knowledge from this and previous/concurrent units.

**Practicals:** some concepts are best learned by hands-on experience. Practical classes offer this experience and both complement and reinforce the lecture content, whilst students practise skills relevant to the observation and interpretation of physiological responses.

**Tutorials:** are opportunities to discuss and apply material covered in lectures or set as tutorial reading. These classes will be part of the 3 hour science laboratory.

**Private study:** students will gain most out of this unit if they prepare thoroughly for all classes by reviewing assumed knowledge and pre-reading both the recommended reading material and the lecture or lab notes. Discussion questions will be provided via lectures, Blackboard or the practical worksheets and are designed to stimulate students to review and consolidate what has been learned. Formative topic quizzes are available via Blackboard to test students’ knowledge on select learning areas. To be successful in this unit the time spent on private study will be at least equal to the contact time. A suggested pattern would be 2 hours for reviewing assumed knowledge and preparing for classes and 3 hours reviewing and consolidating material covered in class and analysing and interpreting laboratory results and observations.

Learning Resources

**Library Reserve**

There are resources for this unit in the library Reserve collection. To access these resources, please click on the following link:

**Essential texts**

The required textbook(s) for this unit are:

  This text book is also available with additional ebook access and study guide.
  (ISBN/ISSN: 9781285866932)
Assessment

Assessment schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Value %</th>
<th>Date Due</th>
<th>Unit Learning Outcome(s) Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Activities</td>
<td>15 percent</td>
<td>Week: 10 Day: Friday Time: 5:00 PM (WST)</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>Tests x 2 (Short Answer)</td>
<td>35 percent</td>
<td>Week: 6 &amp; 12 Day: Tuesday Time: 8:00 AM (WST)</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50 percent</td>
<td>Week: University Examination Period Day: TBA Time: TBA</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

Detailed information on assessment tasks

1. **Laboratory Activities:**
   Practical assessment will be a group lab report based on the renal function, diuretics and acid-base balance laboratories. For this group assignment, all students are required to give an assessment of the contribution given by members of your group and yourself towards the group practical report. This peer review will be done anonymously via the SPARKPLUS program. Please refer to your practical guide for detailed assessment instructions.

2. **Tests x 2 (Short Answer)**
   Each test is worth 17.5% for a total of 35%. Both tests will be held during the first lecture timeslot. Questions will follow a short answer format and will test materials from lectures, tutorials and practical work. There will be a second lecture as per normal timetable on these dates.

3. **Final Examination**
   The final exam will cover the entire semester's work including practical and tutorial classes. It will consist of questions requiring written answers. The emphasis will be on integrating material from throughout the semester. All learning outcomes will be assessed. The final examination will be held during the formal examination period. It is your responsibility to check the date and time for the final examination. University policy disallows information regarding the examination timetable to be given over the telephone. No final results are available prior to the Board of Examiners meeting held after the examination period.

**Pass requirements**

- A pass in the final exam must be obtained in order to pass the unit.
- You are expected to attempt all assessment components in order to satisfy the unit requirements.
- Attendance at tutorial and practical classes is necessary to meet this requirement.
- It is your responsibility to keep a copy of all work submitted.

**Fair assessment through moderation**

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessment are described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/policies/teachingandlearning.cfm
Late assessment policy

This ensures that the requirements for submission of assignments and other work to be assessed are fair, transparent, equitable, and that penalties are consistently applied.

1. All assessments students are required to submit will have a due date and time specified on this Unit Outline.
2. Students will be penalised by a deduction of ten percent per calendar day for a late assessment submission (eg a mark equivalent to 10% of the total allocated for the assessment will be deducted from the marked value for every day that the assessment is late). This means that an assessment worth 20 marks will have two marks deducted per calendar day late. Hence if it was handed in three calendar days late and given a mark of 16/20, the student would receive 10/20. An assessment more than seven calendar days overdue will not be marked and will receive a mark of 0.

Assessment extension

A student unable to complete an assessment task by/on the original published date/time (eg examinations, tests) or due date/time (eg assignments) must apply for an assessment extension using the Assessment Extension form (available from the Forms page at students.curtin.edu.au/administration/) as prescribed by the Academic Registrar. It is the responsibility of the student to demonstrate and provide evidence for exceptional circumstances beyond the student’s control that prevent them from completing/submitting the assessment task.

The student will be expected to lodge the form and supporting documentation with the unit coordinator before the assessment date/time or due date/time. An application may be accepted up to five working days after the date or due date of the assessment task where the student is able to provide an acceptable explanation as to why he or she was not able to submit the application prior to the assessment date. An application for an assessment extension will not be accepted after the date of the Board of Examiners’ meeting.

Assessment extensions:

The Application for Assessment Extension form can be found at the following link:


NO Application for Assessment Extension will be considered without relevant supporting documentation (as per instructions on the form).

Applications for Assessment Extensions can be sent to:

- Directly to the Unit Coordinator - for requests for up to 5 days extension.
- School of Public Health Teaching Support Office (PHTeachingSupport@curtin.edu.au) – where the extension is for more than 5 days or the final piece of assessment.

The outcome of your Application for Assessment Extension will be notified to you by the Official Communication Channel (OCC) as per the Assessment and Student Progression Manual (refer to Section 13).

Appeals:

For details on the student appeals process please refer to the Assessment and Student Progression Manual.

Deferred assessments

If your results show that you have been granted a deferred assessment you should immediately check OASIS for details.

Deferred examinations/tests will be held from 31/01/2017 to 02/02/2017. Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.
Supplementary assessments

Supplementary assessments are not available in this unit.

Reasonable adjustments for students with disabilities/health circumstances likely to impact on studies

A Curtin Access Plan (CAP) is a document that outlines the type and level of support required by a student with a disability or health condition to have equitable access to their studies at Curtin. This support can include alternative exam or test arrangements, study materials in accessible formats, access to Curtin’s facilities and services or other support as discussed with an advisor from Disability Services (disability.curtin.edu.au). Documentation is required from your treating Health Professional to confirm your health circumstances.

If you think you may be eligible for a CAP, please contact Disability Services. If you already have a CAP please provide it to the Unit Coordinator at the beginning of each semester.

Referencing style

The referencing style for this unit is APA 6th Ed.

More information can be found on this style from the Library web site: http://libguides.library.curtin.edu.au/referencing.

Copyright

© Curtin University. The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites.

Academic Integrity (including plagiarism and cheating)

Any conduct by a student that is dishonest or unfair in connection with any academic work is considered to be academic misconduct. Plagiarism and cheating are serious offences that will be investigated and may result in penalties such as reduced or zero grades, annulled units or even termination from the course.

Plagiarism occurs when work or property of another person is presented as one’s own, without appropriate acknowledgement or referencing. Submitting work which has been produced by someone else (e.g. allowing or contracting another person to do the work for which you claim authorship) is also plagiarism. Submitted work is subjected to a plagiarism detection process, which may include the use of text matching systems or interviews with students to determine authorship.

Cheating includes (but is not limited to) asking or paying someone to complete an assessment task for you or any use of unauthorised materials or assistance during an examination or test.

From Semester 1, 2016, all incoming coursework students are required to complete Curtin’s Academic Integrity Program (AIP). If a student does not pass the program by the end of their first study period of enrolment at Curtin, their marks will be withheld until they pass. More information about the AIP can be found at: https://academicintegrity.curtin.edu.au/students/AIP.cfm

Refer to the Academic Integrity tab in Blackboard or academicintegrity.curtin.edu.au for more information, including student guidelines for avoiding plagiarism.
Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

For general ICT assistance, in the first instance please contact OASIS Student Support:

oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre:

life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel

Additional information

- Lecture and practical/tutorial venues will be confirmed during unit orientation.

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

Student Rights and Responsibilities

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- the University’s Guiding Ethical Principles
- the University’s policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University’s policies on appropriate use of software and computer facilities

Information on all these things is available through the University’s “Student Rights and Responsibilities” website at: students.curtin.edu.au/rights.

Student Equity

There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant family responsibilities, pregnancy, religious practices, living in a remote location or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact Student Equity at eesi@curtin.edu.au or go to http://eesj.curtin.edu.au/student_equity/index.cfm for more information

You can also contact Counselling and Disability services: http://www.disability.curtin.edu.au or the Multi-faith services: http://life.curtin.edu.au/health-and-wellbeing/about_multifaith_services.htm for further information.

It is important to note that the staff of the university may not be able to meet your needs if they are not informed of your individual circumstances so please get in touch with the appropriate service if you require assistance. For general wellbeing concerns or advice please contact Curtin’s Student Wellbeing Advisory Service at:

Recent unit changes

Students are encouraged to provide unit feedback through eVALUate, Curtin’s online student feedback system. For more information about eVALUate, please refer to evaluate.curtin.edu.au/info/.

To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See https://evaluate.curtin.edu.au/info/dates.cfm to find out when you can eVALUate this unit.

Recent changes to this unit include:

- A Practical Guide is available for download via BlackBoard. This guide has been prepared to assist you through your learning activities.
- Please print prior to your first class and bring with you to all practical/tutorial classes.
## Program Calendar
**BIOL2002 Physiology for Nutrition - Program Calendar Semester 2, 2016**

<table>
<thead>
<tr>
<th>Week</th>
<th>Begin Date</th>
<th>Lecture</th>
<th>Practical / Tutorial</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>25 Jul</td>
<td>Orientation Week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>1 Aug</td>
<td>1.1-2 Cells &amp; their environment</td>
<td>Self-study</td>
<td></td>
</tr>
</tbody>
</table>
| 2 | 8 Aug | 2.1 Intercellular signalling  
2.2 Neural communication | Somatic senses | |
| 3 | 15 Aug | 3.1 Chemical messengers  
3.2 Hormonal communication | Nerve conduction velocity & reflex response time | |
| 4 | 22 Aug | 4.1 Gas transport  
4.2 Capillary exchange | Breaking point | |
| 5 | 29 Aug | Tuition Free Week | | |
| 6 | 5 Sept | [Test]  
5.1 The urinary system | Regulation of fluids & electrolytes | Test 1  
Tues 8 AM (WST) |
| 7 | 12 Sept | 6.1 Regulation of extracellular fluid volume  
6.2 Regulation of extracellular fluid osmolarity | Regulation of acid-base balance | |
| 8 | 19 Sept | 7.1 Acid-base balance  
7.2 Central endocrine glands | Review of practical results  
Renal handling of solutes | |
| 9 | 26 Sept | Tuition Free Week | | |
| 10 | 3 Oct | 8.1 Peripheral endocrine glands  
8.2 Bone: structure & function | Test 1 revision  
Autonomic reflexes | Group lab report due  
Fri 5 PM (WST) |
| 11 | 10 Oct | 9.1 Endocrine influences on bone  
9.2 Control of digestive function | The chemical senses | |
| 12 | 17 Oct | [Test]  
10.1 Physiology of smooth muscle | Properties of intestinal smooth muscle | Test 2  
Tues 8 AM (WST) |
| 13 | 24 Oct | 11.1 Gastrointestinal motility  
11.2 Secretion & digestion | Digestive enzymes: actions & properties | |
| 14 | 31 Oct | 12.1 Absorption  
12.2 Energy balance | Revision seminar | |
| 15 | 7 Nov | Study Week | | |
| 16 & 17 | | Examination Period (14th November - 25th November 2016) | | |