8472 PHYSIOLOGY 231
Semester One, 2011

Unit study package number: 08472
Mode of study: Internal
Tuition pattern summary: Lecture: 1.5 Hours, 2.0 Times Weekly
Laboratory: 2.0 Hours, 1.0 Times Weekly.*
Credit value: 25 on the successful completion of this unit
Pre-requisite units: Human Biology 134
OR
Structure and Function of the Body 107
OR
Human Biology 136 AND Pharmaceutical Biology 120
OR
Human Biology 130 AND Pharmaceutical Biology 120
Co-requisite units: Nil
Anti-requisite units: Nil
Additional Requirements: Nil
Result type: Grade: Mark
Approved incidental fees: All fee information can be obtained through the Fees Centre. Visit fees.curtin.edu.au for details.

*Average over semester. Laboratory times vary depending upon the particular practical exercise

Scheduled times and Venues:
Lectures: Tuesdays 08.30-10.00am, Room 204.126; Wednesdays 08.30-10.00am, Room 307.101.
Practical: Thursdays: 9.00–1.00pm, Room 405.229.
Thursdays: 2.00–6.00pm, Room 405.229.

Unit Coordinator:
Name: Dr Phil Bourne
Phone: (08) 9246 9238
Email: P.Bourne@curtin.edu.au
Building : Room: 308.221
Consultation times: Anytime office door open.

Administrative contact:
Name: Ms Jeanette McLeod
Phone: (08) 9246 7374
Email: J.McLeod@curtin.edu.au
Building : Room: 308.122

Learning Management System: FLECS - Blackboard (oasis.curtin.edu.au)
Syllabus


**Nerve/Muscle:** Action potentials; Neuromuscular transmission; Pacemaker cells. Electrophysiology of the heart. Skeletal, cardiac and smooth muscle: structure to function. Autonomic Nervous System: Receptors & effectors.

**Cell Communication:** Chemical signalling; Gap junctions; Prostaglandins; Receptors & signal transduction; Intracellular messengers; Homeostasis.

**Endocrine Physiology:** Chemistry, structure and synthesis; Principles of endocrinology; hypothalamic-pituitary interactions; TSH & Thyroid H; ACTH & Adrenal H; GIT Hormones; LH & FSH regulation of reproduction.

**Energy Metabolism:** Fuel homeostasis and metabolic rate; Total-body energy balance. Endocrine control during absorptive and post-absorptive states. Temperature regulation.

Introduction

Physiology is the study of the functions of an organism. This unit looks at important physiological processes which occur within body systems which are essential for life. In the prerequisite unit, Human Biology 134, you were introduced to the structure and function of the systems of the human body. This unit takes this investigation one step further by examining in more detail some of the fundamental physiological processes of the body, e.g., absorption, secretion, communication, transport and movement. However, rather than taking a “systems” approach to the study of human physiology, Physiology 231 looks at these important processes, which are prevalent in several of the body’s systems, from a functional perspective.

Unit Learning Outcomes

On successful completion of this unit students can:

<table>
<thead>
<tr>
<th>Graduate Attributes addressed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrated an integrated knowledge of the cellular, neuromuscular, endocrine, and metabolic processes of human physiological systems and their contribution to the normal processes of life.</td>
</tr>
<tr>
<td>2. Demonstrated practical laboratory skills to investigate and evaluate the mechanisms and metabolic processes of common physiological phenomena as illustrated by vertebrates.</td>
</tr>
<tr>
<td>3. Worked collaboratively in the laboratory to demonstrate the competent use of physiological measuring equipment, including problem-solving and computer skills, for the collection of valid scientific data.</td>
</tr>
<tr>
<td>4. Demonstrated effective written communication skills to describe, explain and critically evaluate physiological data, together with the appropriate citation of supporting information obtained from reviewing the current literature.</td>
</tr>
<tr>
<td>5. Integrated the content of this unit with other existing units from the course to appreciate how the study of human biology leads to a better understanding of both the normal and abnormal mechanisms and processes of life.</td>
</tr>
</tbody>
</table>
Curtin’s Graduate Attributes

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

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

Laboratory Classes:

Students are reminded that **attendance of practical classes is compulsory**. Absenteeism for reasons other than medical, which must be supported with a medical certificate, will only be granted in exceptional circumstances, with prior communication. Students who absent themselves from practical classes without valid medical certificates may find that their evaluation marks for their continuous assessment are adjusted *pro rata*.

Physiology-based labs will be held in the Physiology Laboratory, Room 405.229. University safety regulations require that students wear **white lab coats** and suitable **closed-top shoes** for all practicals held in the laboratory area. Failure to comply with this rule may result in exclusion from the laboratory class. A statement on University regulations about Laboratory Safety Policy can be viewed at http://www.edusafe.edu.au/curtin/policies/labsafety.html.

Learning Resources

**Essential Texts**


**Recommended Texts**

You do not have to purchase the following textbooks but you may like to refer to them.

- *Silverthorn, DU and Hill, RD (2010)*. Student Workbook: Human Physiology: An Integrated Approach, (5th ed.); Pearson Education Inc., publishing as Benjamin Cummings,


*Recommended purchase from the University Bookshop*
READING LIST: All held in closed reserve in the library


### 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>2hr Theory Test</td>
<td>25%</td>
<td>TBA</td>
<td>1, 5</td>
</tr>
<tr>
<td>Practical Worksheets/Reports (4)</td>
<td>25%</td>
<td>TBA</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>Written Examination</td>
<td>50%</td>
<td>TBA</td>
<td>1, 4, 5</td>
</tr>
</tbody>
</table>

**Detailed information on assessment tasks**

1. The Topic Test will consist of MCQ and SAQ based upon lecture content.
2. Practical assessment is based upon 4 practicals. For each, a prelab and lab worksheet/report must be completed and handed in for marking at the conclusion of your lab session. Failure to present either worksheet will result in total loss of marks for that component (see handout).
3. The final examination will be a 3 hour extended-answer paper based on the lecture and practical material. There will be some choice. It will be a closed book exam, and conducted during the official university examination period.

### 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 consistently evaluated by assessors. Minimum standards for the moderation of assessment are described in the Assessment Manual, available from [policies.curtin.edu.au/policies/teachingandlearning.cfm](http://policies.curtin.edu.au/policies/teachingandlearning.cfm)

### Late penalties

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 which students are required to submit will have a due date and time specified on the Unit Outline.
2. Accepting late submission of assignments or other work will be determined by the unit coordinator or Head of School and will be specified on the Unit Outline.
3. If late submission of assignments or other work is not accepted, students will receive a penalty of 100% after the due date and time is a zero mark for the late assessment.
4. If late submission of assignments or other work is accepted, students will be penalised by ten percent per working 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 assignment worth 20 will have two marks deducted per working day late. Hence if it was handed in three working days late and marked as 12/20, the student would receive 6/20. An assessment more than seven working days overdue will not be marked. Work submitted after this time (due date plus seven days) may result in a Fail - Incomplete (F-IN) grade being awarded for the unit.

### Pass requirements

ALL ASSESSMENTS MUST BE COMPLETED AND PRESENTED FOR MARKING TO PASS THIS UNIT. Please note that it is the responsibility of the student to have all requested reports submitted by the due dates. Failure to fulfill this obligation without adequate reason may result in the loss of marks allocated for that particular assessment. Similarly, students are reminded that absenteeism from scheduled assessment and laboratory practicals must be supported with a valid medical certificate. Students choosing not to do so, will forfeit the mark allocated for that particular assessment.
Referencing style
Students should use the Chicago referencing style when preparing assignments. More information can be found on this style from the Library website: library.curtin.edu.au/research_and_information_skills/referencing

Plagiarism
Plagiarism occurs when work or property of another person is presented as one's own, without appropriate acknowledgement or referencing. Plagiarism is a serious offence. For more information refer to academicintegrity.curtin.edu.au

Plagiarism Monitoring
Work submitted may be subjected to a plagiarism detection process, which may include the use of systems such as ‘Turnitin’. For further information see http://academicintegrity.curtin.edu.au/students/turnitin.cfm.

Additional information
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.

Supplementary/Deferred Exams:
Supplementary and deferred examinations granted by School of Biomedical Sciences will be held week beginning July 4th, 2011. Notification to students will be made after the School of Biomedical Sciences Board of Examiners meeting via the Official Communications Channel (OCC) in OASIS. It is the student’s responsibility to check their OASIS account for official Curtin correspondence on a weekly basis. If your results show that you have been awarded a supplementary or deferred exam you should immediately check your OASIS email for details.

Student Rights and Responsibilities
It is the responsibility of every student to be aware of all relevant legislation and policies and procedures relating to his or her 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.

Recent unit changes
We welcome feedback as one way to keep improving this unit. Students are encouraged to give unit feedback through eVALUate, Curtin’s online student feedback system (http://evaluate.curtin.edu.au/info/index.cfm).

http://evaluate.curtin.edu.au/info/dates.cfm
**PHYSIOLOGY 232 LECTURE SCHEDULE**  
**Semester 2, 2011**

**Tuesdays 8.30-10.00am, Room 204.126; Wednesdays 8.30-10.00am, Room 307.101**

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Date</th>
<th>Lecture Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28 February</td>
<td>Cellular Physiology</td>
</tr>
<tr>
<td>2.</td>
<td>07 March</td>
<td>Cellular Physiology</td>
</tr>
<tr>
<td>3.</td>
<td>14 March</td>
<td>Nerve/Muscle Physiology</td>
</tr>
<tr>
<td>4.</td>
<td>21 March</td>
<td>Nerve/Muscle Physiology</td>
</tr>
<tr>
<td>5.</td>
<td>28 March</td>
<td>Cellular Physiology</td>
</tr>
<tr>
<td>6.</td>
<td>04 April</td>
<td>Cellular Physiology</td>
</tr>
<tr>
<td>7.</td>
<td>11 April</td>
<td>Cellular Communication</td>
</tr>
<tr>
<td>8.</td>
<td>18 April</td>
<td>Endocrine Physiology</td>
</tr>
<tr>
<td>9.</td>
<td>25 April</td>
<td>WEEK FREE FROM CLASS CONTACT</td>
</tr>
<tr>
<td>10.</td>
<td>02 May</td>
<td>Endocrine Physiology</td>
</tr>
<tr>
<td>11.</td>
<td>09 May</td>
<td>Endocrine Physiology</td>
</tr>
<tr>
<td>12.</td>
<td>16 May</td>
<td>Energy metabolism</td>
</tr>
<tr>
<td>13.</td>
<td>23 May</td>
<td>Energy metabolism</td>
</tr>
<tr>
<td>14.</td>
<td>30 May</td>
<td>STUDY WEEK</td>
</tr>
<tr>
<td>15.</td>
<td>06 June</td>
<td>EXAMINATIONS</td>
</tr>
<tr>
<td>16.</td>
<td>13 June</td>
<td>EXAMINATIONS</td>
</tr>
</tbody>
</table>
PRACTICAL SCHEDULE FOR SEMESTER 1, 2011

Groups A & B: Thursdays: 9 – 1.00pm, Room 405.229
Groups C & D: Thursdays: 2 – 6.00pm, Room 405.229

Physiology-based labs will be held in the Physiology Laboratory, Room 405.229. University safety regulations require that students wear **white lab coats** and suitable **closed-top shoes** for all practicals held in the laboratory area. Failure to comply with this rule may result in exclusion from the class.

<table>
<thead>
<tr>
<th>Week</th>
<th>Week Beginning</th>
<th>GROUP A or C Practical Topics</th>
<th>GROUP B or D Practical Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28.02.11</td>
<td>NO PRACTICAL THIS WEEK</td>
<td>NO PRACTICAL THIS WEEK</td>
</tr>
<tr>
<td>2</td>
<td>07.03.11</td>
<td>Introductory Laboratory Session</td>
<td>NO PRACTICAL THIS WEEK</td>
</tr>
<tr>
<td>3</td>
<td>14.03.11</td>
<td>Membrane Transport (Physio Ex)</td>
<td>Introductory Laboratory Session</td>
</tr>
<tr>
<td>4</td>
<td>21.03.11</td>
<td>RBC Fragility &amp; Permeability*</td>
<td>Membrane Transport (Physio Ex)</td>
</tr>
<tr>
<td>5</td>
<td>28.03.11</td>
<td>Frog Heart (Physio Ex)</td>
<td>RBC Fragility &amp; Permeability</td>
</tr>
<tr>
<td>6</td>
<td>04.04.11</td>
<td>Physiology of the Working Heart</td>
<td>Frog Heart (Physio Ex)</td>
</tr>
<tr>
<td>7</td>
<td>11.04.11</td>
<td>Neurophysiology (Physio Ex)</td>
<td>Physiology of the Working Heart</td>
</tr>
<tr>
<td>8</td>
<td>18.04.11</td>
<td>Nerve Action Potentials</td>
<td>Neurophysiology (Physio Ex)</td>
</tr>
<tr>
<td>9</td>
<td>25.04.11</td>
<td>WEEK FREE (Easter)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>02.05.11</td>
<td>Skeletal Muscle (Physio Ex)</td>
<td>Nerve Action Potentials</td>
</tr>
<tr>
<td>11</td>
<td>09.05.11</td>
<td>Physiology of Skeletal Muscle</td>
<td>Skeletal Muscle (Physio Ex)</td>
</tr>
<tr>
<td>12</td>
<td>16.05.11</td>
<td>Endocrine Physiology (Physio Ex)</td>
<td>Physiology of Skeletal Muscle</td>
</tr>
<tr>
<td>13</td>
<td>23.05.11</td>
<td>NO PRACTICAL THIS WEEK</td>
<td>Endocrine Physiology (Physio Ex)</td>
</tr>
<tr>
<td>14</td>
<td>30.05.11</td>
<td></td>
<td>Study Week</td>
</tr>
<tr>
<td>15/16</td>
<td>06-17 June</td>
<td>WRITTEN THEORY EXAMINATION DURING THIS PERIOD</td>
<td></td>
</tr>
</tbody>
</table>

*Practicals in **bold type** will be assessed with completed worksheets/reports which are to be handed-in for marking AT THE CONCLUSION OF YOUR LABORATORY SESSION; no extensions are permissible.