Course Outline

Code: ANM103
Title: How Animals Work: Form and Function

Faculty of: Science, Health, Education and Engineering
School of: Science & Engineering
Teaching Session: Semester 2
Year: 2018
Course Coordinator: Dr Dominique Potvin
Course Moderator: Assoc Prof David Schoeman

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1 Description

In this course you will learn about animal form and function. The course takes a comparative approach to investigate the physiology and anatomy of different animal organ systems. You will be introduced to how body systems have evolved in different animal groups to become adapted to the environment, be it terrestrial or aquatic. You will carry out experiments to explore how different systems function. The course will also prepare you for further study in ecophysiology.

1.2 Course topics

In this course you will:
1. Explore animal form and function;
2. Learn about homeostasis and feedback control, thermoregulation and energy requirements;
3. Compare and contrast various organ systems across animal groups, including nervous systems, endocrine systems, sensory systems, musculoskeletal systems, respiratory systems, circulatory systems, immune systems, digestive systems, osmoregulatory systems, and reproductive systems; and
4. Discover similarities and differences in animal development and behaviour.

2. What level is this course?

100 level Introductory - Discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Normally associated with the first full-time year of an undergraduate program

3. Unit Value

12 units
4. **Specific Learning Outcomes**

On successful completion of this course you should be able to:

<table>
<thead>
<tr>
<th>Task</th>
<th>Assessment Tasks</th>
<th>Graduate Qualities or Professional Standards mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Task 1, Task 2, Task 3</td>
<td>Knowledgeable Creative and critical thinking</td>
</tr>
<tr>
<td>2</td>
<td>Task 1</td>
<td>Creative and critical thinking</td>
</tr>
<tr>
<td>3</td>
<td>Task 2</td>
<td>Empowered Creative and critical thinking</td>
</tr>
</tbody>
</table>

**Demonstrate and apply knowledge in the discipline of comparative animal physiology**

**Critically analyse and solve problems in physiology by collecting, accurately recording, interpreting, drawing conclusions from and presenting data, according to scientific conventions.**

**Research, organise scientifically communicate and present information about comparative physiology in a creative and informative way.**

5. **Am I eligible to enrol in this course**

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1 **Enrolment restrictions**

Students must be enrolled in SC320 – Bachelor of Animal Ecology or ED112 – Diploma in Outdoor Environmental Studies or UU301 or XU301

5.2 **Pre-requisites**

Nil

5.3 **Co-requisites**

Nil

5.4 **Anti-requisites**

Nil

5.5 **Specific assumed prior knowledge and skills (where applicable)**

Nil

6. **How am I going to be assessed?**

6.1 **Grading scale**

Standard – High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL)

6.2 **Details of early feedback on progress**

In week 5 you will be given an online quiz with multiple choice questions based upon course content, which reflect the style and detail required for the end of semester exam. These questions are non-weighted and are there to provide early feedback on the course.
### Assessment tasks

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Assessment Tasks</th>
<th>Individual or Group</th>
<th>Weighting %</th>
<th>What is the duration / length?</th>
<th>When should I submit?</th>
<th>Where should I submit it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Laboratory-activity worksheets</td>
<td>Individual</td>
<td>30</td>
<td>$5 \times 300$ words</td>
<td>Weeks 2, 4, 6, 8 &amp; 12</td>
<td>In laboratory/tutorial sessions</td>
</tr>
<tr>
<td>2</td>
<td>Comparative physiology presentation</td>
<td>Group</td>
<td>30</td>
<td>5 min narration</td>
<td>Week 10</td>
<td>Blackboard</td>
</tr>
<tr>
<td>3</td>
<td>End-of-semester Examination</td>
<td>Individual</td>
<td>40</td>
<td>2 hr ($\geq 1000$ words)</td>
<td>Centrally scheduled exam period</td>
<td>Examination venue</td>
</tr>
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</table>

100%

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**Assessment Task 1 – Laboratory-activity worksheets, 30%**

**Goal:** Demonstrate and apply knowledge of physiology experiments and activities performed in the scheduled laboratory classes.

**Product:** Completed laboratory-activity worksheets and quizzes.

**Format:** You will individually complete five laboratory-activity worksheets during scheduled laboratory classes. Worksheets could include written responses to questions, scientific drawings, calculations, graphing and interpretation of experimental results.

**Criteria** You will be assessed on your ability to:
1. Solve problems in animal physiology; and
2. Communicate your understanding of theoretical concepts or your interpretation of experimental results in an accurate manner.

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**Assessment Task 2 – Comparative physiology presentation, 30%**

**Goal:** Compare and contrast a physiological system between two animal groups.

**Product:** A digital presentation of a physiological system between two animal groups.

**Format:** In groups of 2-3 students, you will produce a digital presentation comparing a physiology system between two animal groups, e.g., gas exchange in fish gills vs mammalian lungs, hind-gut fermentation in marsupials vs ruminant digestion. Suggested topics will be provided on Blackboard and you will inform the Course Coordinator of your choice. You will produce a 5-minute movie (you can use software such as iMovie or Windows Movie maker) that is informative, interesting and scientifically based. A written copy of your referenced narration (approximately 350-500 words, Harvard style referencing) must be submitted to SafeAssign on Blackboard by the due date. The movie file will also be uploaded to Blackboard. Further instructions and resource material will be supplied on Blackboard.

**Criteria** You will be assessed on your ability to:
1. Research a scientific topic and understand the relevant content; and
2. Demonstrate and communicate your scientific understanding in a professional manner.

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**Assessment Task 3 – End-of-semester Examination, 40%**

**Goal:** Demonstrate your understanding of and ability to apply and communicate your knowledge regarding animal form and function.

**Product:** A written invigilated examination.

**Format:** The final exam is a comprehensive, two (2) hour final examination, consisting of multiple choice and short answer style questions. The examination is closed book. Formative fortnightly multiple choice style quizzes will be available on Blackboard to help you to gauge your progress with your learning in the course and familiarise yourself with the level of expectation of content knowledge.

**Criteria** You will be assessed on your ability to:
1. Demonstrate and communicate knowledge of the theory of animal physiology.
## 7. What are the course activities?

### 7.1 Directed study hours

The directed study hours listed here are a portion of the workload for this course. A 12 unit course it will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

<table>
<thead>
<tr>
<th>Location: Specific Campus(es) or online:</th>
<th>Directed study hours for location:</th>
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<tbody>
<tr>
<td>USC Sunshine Coast</td>
<td>2-hr Lectorial class each week</td>
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<tr>
<td>USC Fraser Coast</td>
<td>2-hr Laboratory class per fortnight (Weeks 2, 4, 6, 8, 10 &amp; 12)</td>
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### 7.2 Course content

<table>
<thead>
<tr>
<th>Week # / Module #</th>
<th>What key concepts / content will I learn?</th>
</tr>
</thead>
</table>
| 1                 | Animal form and function; homeostasis and feedback control; thermoregulation; energy requirements  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding.  
                    Readings: Chapter 40. Complete online Multiple-choice Quiz (formative) |
| 2                 | Nervous systems  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills. Readings: Chapter 48 & 49 |
| 3                 | Sensory systems  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding.  
                    Readings: Chapter 50. Complete online Multiple-choice Quiz (formative) |
| 4                 | Animal locomotion/movement; musculoskeletal system  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills.  
                    Readings: Chapter 50 |
| 5                 | Hormones and the endocrine system  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding.  
                    Readings: Chapter 45. Complete online Multiple-choice Quiz (formative) |
| 6                 | Gas exchange  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills. Readings: Chapter 42 |
| 7                 | Circulatory systems  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding.  
                    Readings: Chapter 42. Complete online Multiple-choice Quiz (formative) |
| 8                 | Immune systems  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills.  
                    Readings: Chapter 43 |
| 9                 | Animal nutrition, and digestion  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding.  
                    Readings: Chapter 41. Complete online Multiple-choice Quiz (formative) |
| 10                | Osmoregulation and excretion  
                    Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills. Readings: Chapter 44 |
<table>
<thead>
<tr>
<th>11</th>
<th>Animal reproduction</th>
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<tbody>
<tr>
<td></td>
<td>Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding. Readings: Chapter 46. Complete online Multiple-choice Quiz (formative)</td>
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<tr>
<th>12</th>
<th>Animal development</th>
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<tbody>
<tr>
<td></td>
<td>Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Laboratory to build practical skills. Readings: Chapter 47</td>
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<table>
<thead>
<tr>
<th>13</th>
<th>Animal behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lectures to introduce and critically examine key concepts, theoretical underpinnings, and practical applications. Tutorial to consolidate knowledge and understanding. Readings: Chapter 51. Complete online Multiple-choice Quiz (formative)</td>
</tr>
</tbody>
</table>

8. **What resources for I need to undertake this course?**

Please note that course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site. Please log in as soon as possible.

8.1 **Prescribed text(s)**


8.2 **Specific requirements**

You must wear a lab coat, enclosed shoes, and safety glasses during laboratory classes. You must either purchase and bring to lab classes a copy of the Introduction to Animal Physiology laboratory manual, or alternatively print out the manual from Blackboard. The lab manual is available for purchase from Mail and Print Services (MaPS).

9. **Risk management**

Risks in this course are associated with that of a PC1 laboratory. Risk assessments have been performed for each experimental. There is a moderate level of health and safety risk. You must wear a lab coat, enclosed shoes, and safety glasses during laboratory classes. Materials safety data sheets (MSDS) are available at relevant laboratory class.

10. **What administrative information is relevant to this course?**

10.1 **Assessment: Academic Integrity**

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.
10.2 Assessment: Additional requirements

Eligibility for Supplementary Assessment
Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

a) The final mark is in the percentage range 47% to 49.4%
b) The course is graded using the Standard Grading scale
c) You have not failed an assessment task in the course due to academic misconduct

10.3 Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day
- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.

To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to Student Hub.

Contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au

10.5 Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website:
http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.6 General Enquiries

In person:
- USC Sunshine Coast - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- USC South Bank - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- USC Gympie - Student Central, 71 Cartwright Road, Gympie
- USC Fraser Coast - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- USC Caboolture - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890
Email: studentcentral@usc.edu.au