1. **What is this course about?**

1.1 **Description**

Invertebrates are critical in providing ecosystem goods and services vital to the biosphere. This course builds on your introductory knowledge of the diversity, form and function of aquatic and terrestrial invertebrates. You explore the evolution, anatomy, and adaptations of all the invertebrate phyla. You are introduced to their taxonomic diversity, distribution, adaptations to the environment, population management, conservation and pest status. Through local field projects in field ecology, you learn the methods and skills needed to study invertebrates.

1.2 **Course topics**

1) Evolution and phylogeny of the invertebrates;
2) Ecological roles of invertebrates;
3) The diversity of invertebrate groups;
4) Adaptations to the environment;
5) Anatomical, physiological and ecological characteristics;
6) Economic importance of invertebrates: pests and pollinators;
7) Parasites, and vectors of disease.

2. **What level is this course?**

200 level Developing - Applying broad and/or deep knowledge and skills to new contexts. May require pre-requisites and introductory level knowledge/skills. Normally undertaken in the 2nd or 3rd year of an undergraduate program

3. **What is the unit value of this course?**

12 units
4. How does this course contribute to my learning?

<table>
<thead>
<tr>
<th>Specific Learning Outcomes</th>
<th>Assessment tasks</th>
<th>Graduate Qualities or Professional Standards mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>On successful completion of this course, you should be able to:</td>
<td>You will be assessed on the learning outcomes in task/s:</td>
<td>Completing these tasks successfully will contribute to you becoming:</td>
</tr>
<tr>
<td>Demonstrate and apply knowledge about:</td>
<td></td>
<td>Knowledgeable</td>
</tr>
<tr>
<td>i) diversity &amp; main diagnostic characters of each phylum</td>
<td>1. Practical Exam</td>
<td></td>
</tr>
<tr>
<td>ii) adaptations to the environment</td>
<td>2. Invertebrate Field Guide</td>
<td></td>
</tr>
<tr>
<td>iii) links between form and function</td>
<td>3. Exam</td>
<td></td>
</tr>
<tr>
<td>iv) the life cycles of parasites and their health and ecological impacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v) ecological roles of invertebrates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argue with evidence how the rich diversity of invertebrates and their adaptations seen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>today are the product of multiple processes in evolution.</td>
<td>1. Practical Exam</td>
<td>Knowledgeable</td>
</tr>
<tr>
<td>Assemble and present a thematic classified collection of invertebrate species that</td>
<td>2. Invertebrate Field Guide</td>
<td></td>
</tr>
<tr>
<td>illustrates the diversity of the group and their adaptations to the environment.</td>
<td></td>
<td>Creative and critical thinkers</td>
</tr>
</tbody>
</table>
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 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>Practical Exam</td>
<td>Individual</td>
<td>20</td>
<td>2 hrs</td>
<td>A formative, practice practical exam during lab class in week 4 and a summative practical exam in week 6</td>
<td>During scheduled lab time</td>
</tr>
<tr>
<td>2</td>
<td>Invertebrate Field Guide</td>
<td>Individual</td>
<td>35</td>
<td>Minimum of 20 species</td>
<td>Week 12</td>
<td>During lab class or via BlackBoard</td>
</tr>
<tr>
<td>3</td>
<td>Final Exam</td>
<td>Individual</td>
<td>45</td>
<td>2hrs</td>
<td>During University scheduled exam time</td>
<td>Exam venue</td>
</tr>
</tbody>
</table>

Assessment Task 1: Practical Exam

**Goal:** Demonstrate your understanding of the role of evolutionary processes resulting in invertebrate diversity and adaptations to environments.

**Product:** Answers to questions, such as definitions, classifications, using a key, terminology, written arguments, interpret and label diagrams and dissections of invertebrates.

**Format:** This assessment will comprise two components. The first, a short (30 minute) formative, practice practical exam in week 4, followed by a summative two (2) hour practical exam in week 6. Both are scheduled during laboratory class and consist of short-answer questions. The questions will be based mainly on the material covered in the first five weeks of laboratory classes, supplemented with material presented during the lectures.

**Criteria:**
1) Demonstrate and apply knowledge about invertebrates;
2) Argue with evidence how the rich diversity of invertebrates and their adaptations seen today are the product of multiple processes in evolution.

**Generic skill assessed** | **Skill assessment level**
---|---
Problem solving | Developing
## Assessment Task 2: Invertebrate Field Guide

<table>
<thead>
<tr>
<th>Goal:</th>
<th>Demonstrate your ability to work scientifically by applying, under guidance, field methods and theoretical knowledge to illustrate the diversity of invertebrates and their adaptations to the environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product:</td>
<td>A field guide of invertebrates from local habitats.</td>
</tr>
</tbody>
</table>
| Format: | • You are required to assemble and present a field guide of local invertebrates;  
• A minimum of 20 species is required;  
• The collection should be organised around a taxonomic theme (e.g. different butterflies, insects, crustaceans, etc.), a habitat theme (e.g. diversity of rocky shore invertebrates), or an evolutionary/anatomical theme (e.g. evolution of organs for movement/feeding).  
• Each specimen must be accompanied by a detailed taxonomic classification, exact geo-location (from GPS or Google Earth), a detailed description of the microhabitat it was collected from, and a list of the adaptations that the species has for living within that microhabitat;  
• Students are required to take their own photographs/videos of all specimens. The presentation medium can be any of the following: document or book, website (use free editing and hosting services), Facebook page, PowerPoint file, or a YouTube video.  
• NO venomous or endangered species, NO cephalopods (i.e. squid, octopuses, cuttlefish) are to be collected under any circumstances. |
| Criteria: | 1. Demonstrate and apply knowledge about invertebrates  
   • Species identification & taxonomic classification  
2. Assemble and present a thematic-classified collection of invertebrate species that illustrates the diversity of the group and their adaptations to the environment.  
   • Habitat descriptions  
   • Adaptations  
   • Presentation  
   • Thematic focus and coherence  
3. Demonstrate creative thinking in identifying your theme, assembling the collection and presenting it. |

### Generic skill assessed | Skill assessment level
--- | ---
Applying technologies | Developing

## Assessment Task 3: Written Exam

<table>
<thead>
<tr>
<th>Goal:</th>
<th>Demonstrate and apply knowledge of invertebrates as taught in the course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product:</td>
<td>A two (2) hour written exam, consisting of multiple choice and short-answer questions. The questions will be based mainly on the material covered in the theory component of the course (i.e. lectures), supplemented with material presented during the laboratory and field activities</td>
</tr>
<tr>
<td>Format:</td>
<td>A two (2) hour written exam, consisting of multiple choice and short-answer questions. The questions will be based mainly on the material covered in the theory component of the course (i.e. lectures), supplemented with material presented during the laboratory and field activities</td>
</tr>
</tbody>
</table>
| Criteria: | 1) Demonstrate knowledge about invertebrate classification, anatomy, phylogeny, ecology, reproduction, life cycles, adaptations and their roles in the creation and delivery of ecosystems goods and services.  
2) Argue with evidence how the rich diversity of invertebrates and their adaptations seen today are the product of multiple processes in evolution |

### Generic skill assessed | Skill assessment level
--- | ---
Problem solving | Developing
7. **What are the course activities?**

7.1 **Directed study hours**
2 hours of lectures per week, complemented by 2 hours of laboratory activities or field trips per week. Field trips will be in blocks of full or half days.

7.2 **Teaching semester/session(s) offered**
- Sippy Downs: Semester 1
- Fraser Coast: Semester 1

7.3 **Course content**

<table>
<thead>
<tr>
<th>Teaching Week / Module</th>
<th>What key concepts/content will I learn?</th>
<th>What activities will I engage in to learn the concepts/content?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Directed Study Activities</td>
</tr>
<tr>
<td>1</td>
<td>Evolution, phylogeny and systematics of the invertebrates</td>
<td>2 hour lecture, 2 hour lab (Invertebrate Evolution)</td>
</tr>
<tr>
<td>2</td>
<td>Porifera, Cnidaria and Ctenophora</td>
<td>2 hour lecture, 2 hour lab (Systematics and Phylogeny)</td>
</tr>
<tr>
<td>3</td>
<td>Platyhelminthes and Nematoda</td>
<td>2 hour lecture, 2 hour lab (Sponges &amp; Jellyfish)</td>
</tr>
<tr>
<td>4</td>
<td>Annelida</td>
<td>2 hour lecture, 2 hour lab (Platyhelminthes and Nematoda; formative practice practical exam)</td>
</tr>
<tr>
<td>5</td>
<td>Acanthocephala, Rotifera, Nematomorpha and other Small Phyla</td>
<td>2 hour lecture, 2 hr lab (Annelida)</td>
</tr>
<tr>
<td>6</td>
<td>Mollusca 1</td>
<td>2 hour lecture, 2 hour lab (Mid-Semester Practical Exam)</td>
</tr>
<tr>
<td>7</td>
<td>Mollusca 2</td>
<td>2 hour lecture, 2 hour lab (Mollusca 1)</td>
</tr>
<tr>
<td>8</td>
<td>Arthropoda 1 (non-insects)</td>
<td>2 hour lecture, 2hr lab (Mollusca 2)</td>
</tr>
<tr>
<td>9</td>
<td>Arthropoda 2 (Insects)</td>
<td>2 hour lecture, field trip: rocky shore invertebrates - half day</td>
</tr>
<tr>
<td>10</td>
<td>Echinodermata</td>
<td>2 hour lecture, 2 hour lab (Arthropoda 1)</td>
</tr>
<tr>
<td>11</td>
<td>Hemichordata and Chordata</td>
<td>2 hour lecture, 2 hour lab (Arthropoda 2)</td>
</tr>
<tr>
<td>12</td>
<td>Applying your new Knowledge-Current Research in Invertebrate Biology and Ecology</td>
<td>2 hour lecture, 2 hour lab (Echinodermata)</td>
</tr>
<tr>
<td>13</td>
<td>Exam Revision session</td>
<td>None</td>
</tr>
</tbody>
</table>

Please note that the course activities may be subject to variation.
8. **What resources do 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)**

Please note that you need to have regular access to the resource(s) listed below as they are required:

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
</table>

Laboratory manuals will be available on the week prior to the prac on Blackboard. It is your responsibility to print and bring them with you to the lab.

8.2 **Specific requirements**

Nil

9. **Risk management**

Health and safety risks for this course have been assessed as low.

It is your responsibility as a student to review course material, search online, discuss with lecturers and peers, and understand the health and safety risks associated with your specific course of study. It is also your responsibility to familiarise yourself with the University’s general health and safety principles by reviewing the [online Health Safety and Wellbeing training module for students](#), and following the instructions of the University staff.

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 SouthBank - 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

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