Principles of Biology II

Class code
BIOL-UA 9012 – 006 (Lec)
BIOL-UA 9012 – 007 (Rec)

Instructor Details
Dr Sean Blamires
email: sjb22@nyu.edu
Consultations by Appointment
Please allow at least 24 hours for your instructor to respond to your emails.

Class Details
Spring 2015
Principles of Biology II

Wednesday 9:00 – 12:00pm (Lectures)
February 4 to May 13
Room 302
NYU Sydney Academic Centre

Wednesday 1:00 – 2:00pm (Recitations)
February 4 to May 13
Room 301
NYU Sydney Academic Centre

Prerequisites
Principles of Biology I

Class Description
This course gives a broad overview of biology from an evolutionary perspective. Students will be introduced to the major biological forms and functions using a comparative approach. Particular emphasis will be given to how biological structures and systems are adapted to life history and ecology. Coursework will comprise of lectures and discussions.

Desired Outcomes
By the end of the course, students should be able to:

- Define the processes of evolution
- Describe the major morphological characteristics of the main groups of organisms and compare and contrast their biology
- Develop falsifiable hypotheses and design experiments to test them
- Effectively communicate biology using written and oral media
- Locate and critically assess scientific literature

### Mid-term Exam 25% (Session 6, 1 hour during class time)
Multiple choice and short-answer questions based on lectures 1-5.

### Oral Presentation and abstract 25% (Abstracts due in Wk 8, Presentations start in Wk 10)
12 minute presentation + 3 minutes questions, and a 200 word abstract (worth 5% of mark)

### Literature Review 20% (Week 13)
Short scientific paper of no more than 6 double-spaced pages (excluding tables, figures, references and title page). Students will summarize the literature reviewed for their oral presentation.

### Final Exam 30% (Exam Week: Wed 20 May 9.00-11.00am)
Multiple choice and short-answer questions based on lectures 6-14.

*Failure to submit or fulfill any required course component will result in failure of the class.*

### Grade A: Excellent work showing a thorough knowledge and understanding of the topics, with excellent use of scientific language, detailed analysis and clear logical explanations, showing insight, independent, original thought and reasoning.

### Grade B: Good work with good general knowledge and understanding of the topics, accurate use of scientific language, good general analysis and coherent explanations showing some independent reasoning, reading and research.

### Grade C: Satisfactory work, broadly correct both factually and analytically, with some explanation and reasoning: the work will typically demonstrate a basic understanding of the topic.

### Grade D: Passable work, showing a general, superficial knowledge and understanding of the topic, lacking satisfactory use of scientific language or adequate analysis.

### Grade F: Unsatisfactory work in all criteria.

### Grade Conversions
A grading rubric will be provided and distributed in class.

### Late Submission of Work
Written work due in class must be submitted to your instructor during class time.
Late work should be submitted in person to the Academic Coordinator during regular office hours.
hours (9:00am-5:00pm, Monday-Friday). In the absence of the Academic Coordinator, another member of the administrative staff can accept the work in person. The NYUS staff will mark down the date and time of submission in the presence of the student. Students must also submit an electronic copy of late written work to Turn-It-In within 24 hours.

Work submitted after the submission time without an agreed extension receives a penalty of 2 points on the 100-point scale (for the assignment) for each day the work is late.

Written work submitted beyond five (5) weekdays after the submission date without an agreed extension fails and is given a zero.

**Plagiarism Policy**

The academic standards of New York University apply to all coursework at NYU Sydney. NYU Sydney policies are in accordance with New York University’s plagiarism policy. The presentation of another person’s words, ideas, judgment, images or data as though they were your own, whether intentionally or unintentionally, constitutes an act of plagiarism.

Penalties for confirmed cases of plagiarism are severe and are dealt with by the Director, NYU Sydney, not your instructor. Your home school will be notified and you will be dealt with according to the standards of that school. The codes of conduct and academic standards for NYU’s various schools and colleges are outlined in the respective school’s academic resources.

**Attendance Policy**

Study abroad at Global Academic Centres is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centres is mandatory, and unexcused absences will be penalised with a two percent deduction from the student’s final course grade for every week of classes missed.

The class roster will be marked in the first five minutes of class and anyone who arrives after this time will be considered absent. Students are responsible for making up any work missed due to absence. Repeated absences will result in harsher penalties, including failure.

**Classroom Expectations**

This is a seminar subject and requires the active participation of all students. It also requires engaged discussion, including listening to and respecting other points of view. Your behaviour in class should respect your classmates’ desire to learn. It is important for you to focus your full attention on the class, for the entire class period.

- Arrive to class on time.
- Once you are in class, you are expected to stay until class ends. Leaving to make or take phone calls, to meet with classmates, or to go to an interview, is not acceptable.
behaviour.

- Phones, digital music players, and any other communications or sound devices are not to be used during class. That means no phone calls, no texting, no social media, no email, and no internet browsing at any time during class.
- Laptop computers and tablets are not to be used during class except in rare instances for specific class-related activity expressly approved by your instructor.
- The only material you should be reading in class is material assigned for that class. Reading anything else, such as newspapers or magazines, or doing work from another class, is not acceptable.
- Class may not be recorded in any fashion – audio, video, or otherwise – without permission in writing from the instructor.

### Required Texts


### Internet Research Guidelines

Internet resources are not acceptable as references. Peer-reviewed scientific papers are required. Information on appropriate referencing will be provided in the course.

### WEEKLY SCHEDULE (Lectures and Recitations)

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<thead>
<tr>
<th>Week</th>
<th>Lecture and Recitation Topics</th>
<th>Readings</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>Week 1, Wednesday 4 Feb</td>
<td>Bacteria &amp; Archaea Protists</td>
<td>Ch. 27 &amp; Ch. 28</td>
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<tr>
<td>Week 2, Wednesday 11 Feb</td>
<td>Introduction to Animal Diversity Invertebrates</td>
<td>Ch. 32 &amp; Ch. 33</td>
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<td>Week 3, Wednesday 18 Feb</td>
<td>Vertebrates</td>
<td>Ch. 34</td>
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<tr>
<td>Week 4, Wednesday 25 Feb</td>
<td>Principles of Animal Form &amp; Function Animal Nutrition</td>
<td>Ch. 40 &amp; Ch. 41</td>
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<td>Week 5, Wednesday 4 Mar</td>
<td>Circulation and Gas Exchange</td>
<td>Ch. 42</td>
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<td>Week 6, Wednesday 11 Mar</td>
<td>Osmoregulation and Excretion</td>
<td>Ch. 44</td>
<td>Mid-term Exam (1hr) (25%)</td>
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<td><strong>Mid Semester Spring Break 16-20 March</strong></td>
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<td>Week 7, Wednesday 25 Mar</td>
<td>Animal Reproduction, Hormones and the Endocrine System</td>
<td>Ch. 46 &amp; Ch. 45</td>
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<tr>
<td>Week 8, Wednesday 1 Apr</td>
<td>The Immune System; Animal Development</td>
<td>Ch. 47</td>
<td>Student oral presentation abstracts due in class. (5%)</td>
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<tr>
<td>Week 9, Wednesday 8 Apr</td>
<td>Neurons, Synapses and Signalling Nervous Systems</td>
<td>Ch. 48 &amp; Ch. 49</td>
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<td>Week 10, Wednesday 15 Apr</td>
<td>Sensory &amp; Motor Mechanisms, Plant Diversity I: How Plants Colonised Land</td>
<td>Ch. 50 &amp; Ch. 29</td>
<td>Student oral presentations start (20%)</td>
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<td>Week 11, Wednesday 22 Apr</td>
<td>Plant Diversity II: The Evolution of Seed Plants, Plant Structure, Growth and Development</td>
<td>Ch. 30 &amp; Ch. 35</td>
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<td>Week 12, Wednesday 29 Apr</td>
<td>Fungi Ecology</td>
<td>Ch. 31 &amp; Ch. 52-56</td>
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<td>Week 13, Wednesday 6 May</td>
<td>Resource Acquisition &amp; Transport in Vascular Plants, Soil and Plant Nutrition</td>
<td>Ch. 36 &amp; Ch. 37</td>
<td>Scientific paper due. (20%)</td>
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<td>Week 14, Wednesday 13 May</td>
<td>Angiosperm Reproduction and Biotechnology, Plant Responses to Internal and External Signals</td>
<td>Ch. 38 &amp; Ch. 39</td>
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<td>Exam Week Wednesday</td>
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<td>Final Exam (30%) 9.00-11.00am</td>
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**Your Instructor**

Dr. Sean J. Blamires (Ph.D., University of Sydney) is a DECRA Postdoctoral Fellow at the University of New South Wales and a National Science Council Fellow at Tunghai University, Taiwan. His major research interest is the evolution, plasticity and biomechanics of extended phenotypes. He uses spider webs and silks as models to understand how prey types, nutrients, and climatic variables induce variations at nano- to macro-scales. He has collaborative research links with the University of Akron, USA, and the National Synchrotron Radiation Research Centre, Taiwan, among others. He has published over 30 scientific papers in a range of journals, including *Current Biology, Biomacromolecules, Journal of the Royal Society Interface* and the *Journal of Experimental Biology*. 