Course Code: 1041SCG
Course Name: Biological Systems
Semester: Semester 1, 2015
Program: Diploma of Biosciences
Credit Points: 10
Course Coordinator: Dr Dayana Matthews
Document modified: 13 Feb 2015 14:52:02

Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Dayana Matthews</td>
<td><a href="mailto:dayana.matthews@staff.qibt.qld.edu.au">dayana.matthews@staff.qibt.qld.edu.au</a></td>
</tr>
</tbody>
</table>

Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. A list of times and rooms will be published on the QIBT Portal under the "myTimetable" link.

Prerequisites

There are no prerequisites for this course

Brief Course Description

Biological Systems is an introductory course that provides an appreciation of the main concepts of modern biology. Students will gain an understanding of the origin, function and structure of living organisms by examining life at increasing levels of biological complexity, from the molecular and cellular level to whole organisms and ecosystems. Course content will be delivered through a combination of lectures, workshops, laboratory sessions and online material. Co-requisite: 1021SCG Chemistry 1A Incompatible: 1005BPS Cell Biology & Biological Systems; 1601ENV Biological Systems; 1002BBS Cell Biology; 1002BBS Cell and Molecular Biology

Rationale

This course provides an introduction to the biology of organisms. It is a basic biology course that can be used as a foundation for those not wishing to study biology further but is essential background for students wishing to undertake further study in the biological, ecological, biomedical and biomolecular sciences. It includes an understanding of the classification of biological organisms, the underlying differences in cell structure and function of prokaryotes and eukaryotes. The course also covers plant and animal biology through the understanding of central metabolic pathways, plant and animal diversity with particular emphasis on how the structure of organisms influences how they function in different environments.

Aims

This course provides an introduction to cell biology and biological systems, including cell structure and reproduction, genetics and inheritance and introductory animal and plant biology. The aim is to provide the essential understanding of cells and biological systems necessary for further study in the biological, ecological, biomedical and biomolecular sciences.

Learning Outcomes

Upon successful completion of this course students will be able to:
1. Demonstrate a broad understanding of biological organisms at both the cellular and whole organism level.
2. Use basic laboratory equipment to examine biological specimens.
3. Work effectively with other students in the laboratory.
4. Produce written laboratory reports for assessment and feedback.
5. Apply knowledge gained to formulate possible solutions to set problems.

Texts and Supporting Materials
Organisation and Teaching Strategies

The Course is taught by using a variety of teaching and learning activities including lectures and intensive, facilitated workshops/tutorials and laboratory sessions.

Topics to be covered include:

- Module 1: Cell & Molecular Biology
- Module 2: Introduction to Diversity of Life
- Module 3: Plant Diversity
- Module 4: Animal Diversity
- Module 5: Introduction to Ecology

Class Contact Summary

The lectures (3 hr) will provide an overview and discussion of key material of each module topic, and the workshops will examine and discuss material in greater depth to allow you the opportunity to develop and consolidate your learning and test your knowledge of the subject material on an ongoing basis.

Workshop (1hr) sessions will be used to focus your attention on the learning objectives for each module and as a small group activity will enable the development of effective communication skills.

Tutorial (1hr) sessions will allow consolidation of module content, providing the opportunity to focus on specific topics through group discussion, worksheets and web-based tasks.

Laboratory sessions (Two 2 hr & One 4 hr) will allow you to apply information learnt in lectures, tutorials and workshops and become familiar with the general approach common to all studies of biological systems.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80% and that GPA is maintained at equal to or greater than 3.5 [please see QIBT Policy Library - Program progression Policy - for more information].

Weekly Teaching Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Activity</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Domains of life &amp; cells:</td>
<td>Lecture</td>
<td>Text book Ch. 6</td>
</tr>
<tr>
<td>2</td>
<td>Cell Structure and Function:</td>
<td>Lecture</td>
<td>Ch. 6 &amp; 7</td>
</tr>
<tr>
<td></td>
<td>Cell components, cell membranes</td>
<td>Tutorial</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cell cycle, Cell Division and Mitosis:</td>
<td>Lecture</td>
<td>Ch. 12</td>
</tr>
<tr>
<td></td>
<td>Module Quiz 1 (on weeks 1 &amp; 2)</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sexual life cycle, Meiosis and Inheritance</td>
<td>Lecture</td>
<td>Ch. 13, 14 &amp; 15</td>
</tr>
<tr>
<td></td>
<td>Mendelian genetics</td>
<td>Tutorial</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DNA to Protein:</td>
<td>Lecture</td>
<td>Ch. 16 &amp; 17</td>
</tr>
<tr>
<td></td>
<td>Gene expression</td>
<td>Tutorial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Module Quiz 2 (on weeks 3 &amp; 4)</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Respiration &amp; Photosynthesis</td>
<td>Lecture</td>
<td>Ch. 9 &amp; 10</td>
</tr>
<tr>
<td>7</td>
<td>Introduction to Diversity of Life:</td>
<td>Lecture</td>
<td>Ch. 26</td>
</tr>
<tr>
<td></td>
<td>Phylogenies</td>
<td>Tutorial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Module Quiz 3 (on weeks 5 &amp; 6)</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Plant Anatomy &amp; Physiology</td>
<td>Lecture</td>
<td>Ch. 35 &amp; 36</td>
</tr>
<tr>
<td>9</td>
<td>Reproduction in plants, plant defenses</td>
<td>Lecture</td>
<td>Ch. 38</td>
</tr>
</tbody>
</table>
Assessment

This section sets out the assessment requirements for this course.

Summary of Assessment

<table>
<thead>
<tr>
<th>Item</th>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Relevant Learning Outcomes</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Laboratory Reports</td>
<td>30%</td>
<td>1,2,3,4,5</td>
<td>11 &amp; 12</td>
</tr>
<tr>
<td>2</td>
<td>Seminar</td>
<td>10%</td>
<td>1,2,4</td>
<td>Week 10</td>
</tr>
<tr>
<td>3</td>
<td>5 Module Quizzes</td>
<td>25%</td>
<td>1,5</td>
<td>3, 5, 7, 10 &amp; 12</td>
</tr>
<tr>
<td>4</td>
<td>Laboratory Activities</td>
<td>10%</td>
<td>1,2,3,4,5,6</td>
<td>Week 4</td>
</tr>
<tr>
<td>5</td>
<td>Final Exam</td>
<td>40%</td>
<td>1,2,3,5</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>Module Quiz 1</td>
<td>10%</td>
<td>1,2,3,5</td>
<td>Week 3</td>
</tr>
<tr>
<td>7</td>
<td>Module Quiz 2</td>
<td>10%</td>
<td>1,2,3,5</td>
<td>Week 5</td>
</tr>
<tr>
<td>8</td>
<td>Module Quiz 3</td>
<td>10%</td>
<td>1,2,3,5</td>
<td>Week 7</td>
</tr>
<tr>
<td>9</td>
<td>Module Quiz 4</td>
<td>10%</td>
<td>1,2,3,5</td>
<td>Week 9</td>
</tr>
</tbody>
</table>

Assessment Details

**Laboratory reports**
Type: Assignment - Written Assignment
Weight: 30%
Task Description: Reports to be submitted at the end of each compulsory laboratory session.
Criteria & Marking: Students have completed all aspects of the report. Marks will be awarded for all correct answers as indicated on the report proforma. Students should normally submit 4 reports in Weeks 11 and 12, on Cells, Cell Division, Plants & Animal Dissection. Each report will be marked out of 10 and the marks for the best 3 reports will be used to provide the final mark out of 30.
Submission: Reports must be handed directly to the staff at the end of the laboratory session.

**5 Module Quizzes**
Type: selected and constructed responses
Weight: 5% each, total 25%
Perusal: 5 minutes
Duration: 20 minutes
Format: Closed Book
Task Description: Selected response and written short answer response.
Criteria & Marking: Marks will be awarded for correct responses.

**Final Exam**
Type: Exam - selected and constructed responses
Weight: 45%
Perusal: 10 minutes
Duration: 150 minutes
Task Description:
Understanding of course concepts and content, including ability to apply course concepts and content to problems.

Criteria & Marking:
Marks will be awarded for correct responses.

To pass this course you must achieve an aggregate of at least 50%

Submission and Return of Assessment Items

Normally you will be able to collect your assignments in class within fourteen [14] days of the due date for submission of the assignment.

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Extensions

To apply for an extension of time for an assessment item you must submit a written request to your lecturer via the Student Website at least 48 hours before the date the assessment item is due. Grounds for extensions are usually serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. medical certificate]. Please refer to the QIBT website - Policy Library - for guidelines regarding extensions and deferred assessment.

Penalties for late submission without an approved extension

Penalties apply to assignments that are submitted after the due date without an approved extension. Assessment submitted after the due date will be penalised 10% of the TOTAL marks available for assessment (not the mark awarded) for each day the assessment is late. Assessment submitted more than five days late will be awarded a mark of zero (0) For example:

- > 5 minutes and <= 24 hours 10%
- > 24 hours and <= 48 hours 20%
- > 48 hours and <= 72 hours 30%
- > 72 hours and <= 96 hours 40%
- > 96 hours and <= 120 hours 50%
- > 120 hours 100%

Note:
- Two day weekends will count as one day in the calculation of a penalty for late submission.
- When a public holiday falls immediately before or after a weekend, the three days will count as one day in the calculation of a penalty for late submission.
- When two public holidays (e.g. Easter), fall immediately before or after, or one day either side of a weekend, the four days will count as two days in calculating the penalty for late submission.
- When a single public holiday falls mid-week, the day will not be counted towards the calculation of a penalty.

Please refer to the QIBT website - Policy Library > Assessment Policy for guidelines and penalties for late submission.

Assessment Feedback

Marks awarded for assessment items will also be available on the on-line grades system on the Student Website within fourteen [14] days of the due date.

Generic Skills

QIBT aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

<table>
<thead>
<tr>
<th>Generic Skills</th>
<th>Taught</th>
<th>Practised</th>
<th>Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Information Literacy</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Secondary Research</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Critical and Innovative Thinking</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Academic Integrity</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Self Directed Learning</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Team Work</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Cultural Intelligence</td>
<td>Yes</td>
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<tr>
<td>English Language Proficiency</td>
<td>Yes</td>
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</table>

Additional Course Generic Skills

<table>
<thead>
<tr>
<th>Specific Skills</th>
<th>Taught</th>
<th>Practised</th>
<th>Assessed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ethical Behaviour in social/professional/work environments</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Autonomously</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

**Additional Course Information**

**Teacher and Course Evaluations**
Past students commented that the pace, content and comprehensive course structure supported and encouraged their learning in a positive way. They also liked the mini-conference format of the genetics seminars that generated discussion and debate, as well as the hands on participation in the practical sessions. In response to student feedback for more collaborative and social learning opportunities, team-based concept mapping exercises on making visual summaries of course content have been designed. These maps are also very helpful for revision of content.

Your feedback is respected and valued by your lecturers and tutors. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations via QIBT’s online evaluation tool whenever these are available.

**Academic Integrity**

QIBT is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual’s and the College’s reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, QIBT also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at QIBT, your lecturers, tutors and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

Please ensure that you are familiar with the QIBT Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Academic Integrity Policy on the QIBT website – Policy Library.

**Risk Assessment Statement**

This course follows QIBT and Griffith University Workplace Health and Safety Laboratory guidelines.

The aim of workplace health and safety is to make sure that people do not get sick or injured at the workplace. The legislation dealing with this in Queensland is called the Workplace Health and Safety Act, 1995. Anyone who can affect workplace health and safety has an obligation under this Act.

As a student, you have an obligation to yourself and others to undertake activities in a safe manner. You must follow instructions which are provided for safety. You must not put yourself or anyone else at risk. Care especially needs to be taken when you are performing activities which can affect others.

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