



BOTN12010 Botany of Aquatic Environments

Term 2 - 2017

Profile information current as at 16/05/2024 04:19 pm

All details in this unit profile for BOTN12010 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

This unit is a study of the systematics, physiology and ecology of photosynthetic life of aquatic environments, including the cyanoprokaryotes (Domain Bacteria) dinoflagellates (Kingdom Alveolata), diatoms and brown algae (Kingdom Stramenopila), red algae (Kingdom Rhodophyta), green algae, and freshwater and marine plants (Kingdom Plantae). Brief mention is also made of the mosses and ferns. It provides an introduction to these groups, emphasising their morphology, evolutionary pattern and ecological importance. Field studies are undertaken as part requirement of the unit.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

BOTN11004 Foundation Plant Biology or BIOL11099 Living Systems

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 2 - 2017

- Distance
- Rockhampton

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **In-class Test(s)**

Weighting: 16%

2. **Written Assessment**

Weighting: 17%

3. **Practical and Written Assessment**

Weighting: 17%

4. **On-campus Activity**

Weighting: Pass/Fail

5. **Examination**

Weighting: 50%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Moodle Student evaluation of unit

Feedback

Some students commented that the best part of the unit was the residential school which was very helpful and the field trips were great. They also liked the lecture delivery including the drawing of diagrams to assist in explanations. The assessment tasks were well received and one student commented that they really helped to facilitate and consolidate the learning of the course. One student commented that the assessment tasks were returned in the most timely fashion they had ever experienced. Another said the lecturer was great and the class was so much fun. Another said the lecturer was "pretty cool :)" ... Aw shucks. There was only one comment on how the unit may be improved - the suggestion was to maybe have a few more breaks during the res school when it's all day in the lab.

Recommendation

Consider having more breaks during the res school when it's all day in the lab.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. A knowledge of the major groups of photosynthetic life in aquatic habitats such that you can explain their systematics and phylogenetic relationships and the ability to classify and identify members of these groups using the keys discussed in the unit.
2. A knowledge of the ecology of aquatic photosynthetic life such that you can outline how their anatomy, physiology and life cycles are interrelated, how they are adapted to their particular habitats and explain how this relates to the management of aquatic environments.
3. Field and laboratory skills in the techniques of collection, beginning level identification, accurate enumeration and growth of representatives of the groups.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes		
	1	2	3
1 - In-class Test(s) - 16%	•	•	•
2 - Written Assessment - 17%	•	•	
3 - Practical and Written Assessment - 17%	•	•	•
4 - Examination - 50%	•	•	•
5 - On-campus Activity - 0%	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes		
	1	2	3
1 - Communication	•	•	•
2 - Problem Solving			•
3 - Critical Thinking	•		•
4 - Information Literacy	•	•	•
5 - Team Work	•	•	•
6 - Information Technology Competence	•	•	•
7 - Cross Cultural Competence			•
8 - Ethical practice			•
9 - Social Innovation			
10 - Aboriginal and Torres Strait Islander Cultures			

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - In-class Test(s) - 16%	•	•	•	•						
2 - Written Assessment - 17%	•	•	•	•						
3 - Practical and Written Assessment - 17%	•	•	•	•				•		
4 - Examination - 50%	•	•	•	•				•		
5 - On-campus Activity - 0%	•	•	•	•	•		•	•		

Textbooks and Resources

Textbooks

BOTN12010

Prescribed

Freshwater Algae in Australia

Edition: 1st (1997)

Authors: Entwistle, T. S.

Sainty & Associates

Sydney , NSW , Australia

Binding: Hardcover

BOTN12010

Prescribed

Phycology

Edition: 4th (2008)

Authors: Lee, R.E.

Cambridge University Press

Melbourne , Victoria , Australia

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Leo Duivenvoorden Unit Coordinator

l.duivenvoorden@cqu.edu.au

Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction and Cyanoprokaryota: Chroococcales		

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Cyanoprokaryota: Oscillatoriales and Nostocales		

Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Management of blue-green algae		

Week 4 - 31 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Freshwater macrophytes, diatoms, dinoflagellates. The lectures on aquatic macrophytes are given at this time to assist in preparation for the two assignments.		

Week 5 - 07 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Chlorophyta (green algae). This is a large group of algae covering many large groups, hence there is some focus on these.		Essay on control of the aquatic weed <i>Hymenachne</i> Due: Week 5 Wednesday (9 Aug 2017) 11:45 pm AEST

Vacation Week - 14 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Week 6 - 21 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Residential school		Compulsory Residential school Wednesday 23 August to Saturday 26 August including in-class test

Week 7 - 28 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Chlorophyta (green algae) continued		

Week 8 - 04 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Phaeophyta (brown algae)		

Week 9 - 11 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Rhodophyta (red algae) Marine algal ecology.		

Week 10 - 18 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Marine algal ecology. Pterophytes (ferns): focus is on aquatic species causing management problems for water bodies.		

Week 11 - 25 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Seagrasses: their biology and importance.		Aquatic plant collection OR report on aquatic macrophytes Due: Week 11 Monday (25 Sept 2017) 11:45 pm AEST

Week 12 - 02 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
Mangroves: an important ecosystem vital to fisheries and biodiversity of our shorelines.		

Review/Exam Week - 09 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Assessment Tasks

1 In-class Test(s)

Assessment Type

In-class Test(s)

Task Description

This test will be based on the practical and theory material covered on Cyanoprokaryotes (see Chapter 2 of the Study Guide for the theoretical information).

It will be of approximately 15 - 20 minutes duration.

Assessment Due Date

The in-class test will be held during the last session of the residential school on Saturday 26 August.

Return Date to Students

Week 8 Friday (8 Sept 2017)

Results of in-class tests will be available by Friday of week 8

Weighting

16%

Minimum mark or grade

30%

Assessment Criteria

For this assessment item you need to be able to demonstrate your knowledge and understanding of the practical and theoretical information presented on the cyanoprokaryotes. See Moodle site for further details.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Offline

Submission Instructions

In-class tests will be submitted during the residential school.

Learning Outcomes Assessed

- A knowledge of the major groups of photosynthetic life in aquatic habitats such that you can explain their systematics and phylogenetic relationships and the ability to classify and identify members of these groups using the keys discussed in the unit.
- A knowledge of the ecology of aquatic photosynthetic life such that you can outline how their anatomy, physiology and life cycles are interrelated, how they are adapted to their particular habitats and explain how this relates to the management of aquatic environments.
- Field and laboratory skills in the techniques of collection, beginning level identification, accurate enumeration and growth of representatives of the groups.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

2 Essay on control of the aquatic weed *Hymenachne*

Assessment Type

Written Assessment

Task Description

This will be a report (word limit 1500 words) on the control of the aquatic weed *Hymenachne*.

The topic is:

A new housing development in tropical Australia has some problems associated with its parklands that have as a central focus some water bodies connected by a small stream. Although the parkland is mowed to within a few metres of the water's edge and has good shade, the water bodies are choked with the aquatic weed *Hymenachne amplexicaulis*. As a result they are no longer aesthetically pleasing given that there is little open water (despite some of them being 30 m across). Upstream of the development there is farmland which is the likely source of the *Hymenachne*.

As an environmental scientist you have been asked to write a report detailing solutions to the weed problem. Include in your report:

- a brief introduction explaining the problem and including succinct details about the biology of the weed (e.g. details of its ability to spread, rate of growth);
- physical and chemical options for its control (including advantages and disadvantages of each method, types of chemicals to use and application methods);
- a list of plants to use for replanting the waterbody with macrophytes both on the edges (emergents) and also in the shallow parts of the water (including reasons why these species are to be used);
- an outline of a management programme including frequency of monitoring and spraying to keep weeds in check and
- a summary of your recommendations.

See Moodle site for further details.

Assessment Due Date

Week 5 Wednesday (9 Aug 2017) 11:45 pm AEST

Return Date to Students

Week 7 Friday (1 Sept 2017)

Weighting

17%

Minimum mark or grade

30%

Assessment Criteria

Please check your assignment against the general assessment criteria below before submission.

You will need to check your assignment against these criteria if you want to maximise your marks for it. **Ensure you cover each of the areas mentioned in the topic as these will be part of the marking scheme for the assignment.**

Correct format for referencing in the text and for the reference list at the end of the essay will also be important aspects. Use of refereed journal articles is encouraged – you should cite at least six of these.

Please note that penalties will apply for essays that do not meet the required word limit (within 10% over and 10% under the limit). The word limit includes words in tables but not those in the reference list. This penalty will be 5% of the assignment mark for every 100 words outside this range. Late assignments will lose marks as per the university policy – 5% of the assignment marks per calendar day late.

General Assessment Criteria

Characteristics of F (Fail) work:

- Insufficient content, too brief/or superficial
- Irrelevant content
- Information supplied does not relate to topic
- Serious factual mistakes and/or inadequacies
- Apparent lack of comprehension of issues and concepts relevant to topic
- Deficiencies in logical argument.

Criteria for P (Pass) grade include:

- Adequate coverage of major aspects of assignment subject
- Evidence of comprehension of key issues and concepts
- Clear argument and expression of ideas
- Appropriately structured sentences and paragraphs
- Referencing using the Harvard system (accurate and consistent).

Criteria for C (Credit) grade includes criteria for P (Pass) work plus:

- Evidence of relevant reading beyond core material
- Comprehension and judgment relating to issues and concepts
- Application of reading/evidence/theory beyond the obvious
- Well organised material that supports the arguments
- Well developed thought processes and arguments.

Criteria for D (Distinction) grade includes criteria for C (Credit) work plus:

- Evidence of extensive reading beyond core material
- Critical comprehension and sound judgment relating to issues and concepts
- High degree of thought in the application of reading evidence theory
- Well structured argument
- Fluent expression of ideas.

Criteria for HD (High Distinction) grade includes criteria for D (Distinction) work plus:

- Extensive reading and gathering of appropriate evidence
- Rigorous critique of existing theories, concepts, issues
- A high degree of precision and rigour in the argument
- Evidence of capacity for independent and original thought.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Please submit your assignment via the on-line system in Moodle. Submission should be made as a Word or Text file.

Learning Outcomes Assessed

- A knowledge of the major groups of photosynthetic life in aquatic habitats such that you can explain their systematics and phylogenetic relationships and the ability to classify and identify members of these groups using the keys discussed in the unit.
- A knowledge of the ecology of aquatic photosynthetic life such that you can outline how their anatomy, physiology and life cycles are interrelated, how they are adapted to their particular habitats and explain how this relates to the management of aquatic environments.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

3 Aquatic plant collection OR report on aquatic macrophytes

Assessment Type

Practical and Written Assessment

Task Description

This assignment involves the submission of an aquatic plant collection **OR** a report on aquatic macrophytes - see Moodle site for details.

For the aquatic plant collection you will need to collect and identify (using a plant identification key) 20 plant specimens. These will need to come from four different categories - please see the Moodle site for further details.

If instead you choose to do the report, it will involve preparing a 2000 word document to provide information to local landholders about freshwater aquatic macrophytes in Queensland. This will be limited to eight species - please see the Moodle site for further details.

Assessment Due Date

Week 11 Monday (25 Sept 2017) 11:45 pm AEST

Return Date to Students

Monday (9 Oct 2017)

Weighting

17%

Minimum mark or grade

30%

Assessment Criteria

See Moodle site for details.

Assessment criteria for the aquatic plant collection are:

In general, up to 5 marks will be awarded per specimen as follows:

Up to 2 marks for each specimen for correct labelling including collector, locality, date, identification and quality of specimens presented (properly dried and pressed).

Up to 3 marks for each specimen for correct identification of family, genus and species: this includes correct spelling of scientific names.

For the report on aquatic macrophytes please check the general criteria provided on the Moodle site. I will also be looking for clear presentations of the material and appropriate referencing of information gathered.

Please note that penalties will apply for essays that do not meet the required word limit (within 10% over and 10% under

the limit). The word limit includes words in tables but does not include words in the reference list. This penalty will be 5% of the assignment mark for every 100 words outside this range. Late assignments will lose marks as per the university policy – 5% of the assignment marks per calendar day late.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Offline Online

Submission Instructions

If you choose to do the essay this needs to be submitted via the Moodle site. Otherwise, on campus students can submit their collections directly to me or the Administration staff on Level 1 of building 6 on the Rockhampton campus. Distance students can mail their collections to me directly care of the School of Medical and Applied Science, CQUniversity, Rockhampton 4702.

Learning Outcomes Assessed

- A knowledge of the major groups of photosynthetic life in aquatic habitats such that you can explain their systematics and phylogenetic relationships and the ability to classify and identify members of these groups using the keys discussed in the unit.
- A knowledge of the ecology of aquatic photosynthetic life such that you can outline how their anatomy, physiology and life cycles are interrelated, how they are adapted to their particular habitats and explain how this relates to the management of aquatic environments.
- Field and laboratory skills in the techniques of collection, beginning level identification, accurate enumeration and growth of representatives of the groups.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Ethical practice

4 Attendance at Compulsory Residential school

Assessment Type

On-campus Activity

Task Description

Attend the residential school and complete the practicals, including the in-class test.

Assessment Due Date

Residential school starts on Wednesday 23 August at 9am in building 8/LG07 on the Rockhampton North campus.

Return Date to Students

Residential school will finish on Saturday 26 August at 5pm.

Weighting

Pass/Fail

Assessment Criteria

No Assessment Criteria

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Offline

Submission Instructions

Students will need to submit in class test assessment associated with the residential school in hard copy.

Learning Outcomes Assessed

- A knowledge of the major groups of photosynthetic life in aquatic habitats such that you can explain their systematics and phylogenetic relationships and the ability to classify and identify members of these groups using the keys discussed in the unit.

- A knowledge of the ecology of aquatic photosynthetic life such that you can outline how their anatomy, physiology and life cycles are interrelated, how they are adapted to their particular habitats and explain how this relates to the management of aquatic environments.
- Field and laboratory skills in the techniques of collection, beginning level identification, accurate enumeration and growth of representatives of the groups.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Cross Cultural Competence
- Ethical practice

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

50%

Length

120 minutes

Minimum mark or grade

50

Exam Conditions

Closed Book.

Materials

No calculators permitted

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem