ENVH12003 *Environmental Toxicology*
Term 2 - 2023

Profile information current as at 05/05/2024 07:11 pm

General Information

Overview

Environmental toxicology is the study of the nature, properties, effects, and detection of toxic substances in diverse environments and those exposed. In this unit, you will study an introduction to basic toxicology from a public health perspective, focusing on developing an understanding of the principles of the discipline and the concepts relating to environmental exposures. Topics that will be covered include routes of exposure, the concept of dose, dose-response relationships, absorption and distribution of toxicants, biotransformation and elimination, target organ toxicity, carcinogenesis, mutagenesis, teratogenesis and risk assessment. You will examine toxicants of interest within community and occupational environments as well as how they are tested and regulated. You will practise your professional skills by reviewing case studies and special topics of interest.

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

Prerequisites: 48 credit points AND SCIE11022 OR ENVH11001 OR CHEM11041 OR CHEM11042 OR CHEM11044 Students who have completed other Chemistry or Biochemistry units should contact the Unit Coordinator.
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 - 2023

- Online

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).

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. **Online Quiz(zes)**
Weighting: 20%
2. **Written Assessment**
Weighting: 40%
3. **Take Home Exam**
Weighting: 40%

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 Observations

Feedback
Students did not attend tutorials.

Recommendation
Continue to emphasise that participation in tutorials is highly recommended and that sessions are not recorded if there is no attendance. Consider commencing delivery from Week 2 instead of waiting until Week 3, to develop a routine.

Feedback from Observation

Feedback
Students were less engaged

Recommendation
Introduce some new activities using H5P to boost engagement.

Unit Learning Outcomes

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

1. Define fundamental toxicological concepts
2. Identify and classify a range of common toxicants and their environmental sources
3. Explain the dose-response relationship and its implications and applications
4. Describe fundamental processes and endpoints relating to toxicants within the human body
5. Apply the principles of risk assessment and risk management to toxicological situations
6. Discuss major issues in environmental toxicology relating to exposures from natural and anthropogenic sources
7. Critically consider the ethical and regulatory implications of toxicological research, associated uncertainties and risk communication.

Bachelor of Public Health (Environmental Health)
Foundation and applied environmental toxicology (LOs 1, 2, 3, 4 & 6) are identified as underpinning skills and knowledge in Part 2 of the Environmental Health Australia Skills & Knowledge Matrix, used as the basis for accreditation of the Bachelor of Public Health (Environmental Health) course. Methods of risk assessment and management (including as applied to toxicological issues) (LO 5) and the use of evidence in regulatory practice (LO7) are also identified as underpinning knowledge. Additionally, toxicology is an integral part of many of the activity-specific skills and knowledge identified in Part 3 of the Matrix.

Bachelor of Occupational Health & Safety
An understanding of toxicology is also important to support studies in Occupational Hygiene, considered a core knowledge area in the Safety Institute of Australia's Body of Knowledge, proposed to be used for accreditation of OHS courses within Australia.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Online Quiz(zes) - 20%	•	•	•				
2 - Written Assessment - 40%					•	•	•
3 - Take Home Exam - 40%	•	•	•	•			

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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 - Online Quiz(zes) - 20%	•		•	•						
2 - Written Assessment - 40%	•	•	•	•			•	•		
3 - Take Home Exam - 40%	•	•	•							

Textbooks and Resources

Textbooks

ENVH12003

Prescribed

A Textbook of Modern Toxicology
Edition: 4th (2011)
Authors: Hodgson, Ernest
Wiley
Hoboken , New Jersey , USA
ISBN: 978-1-118-21129-8
Binding: Hardcover

Additional Textbook Information
This textbook is also available in electronic format from Amazon.

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Zoom (both microphone and webcam capability)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Lisa Bricknell Unit Coordinator
l.bricknell@cqu.edu.au

Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to environmental toxicology Exposure settings	Selected readings from Chapters 1 & 3.	

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Classifying toxicants by use	Selected readings from Chapter 4	

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Toxicokinetics and biotransformation	Selected readings from Chapter 5	

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic

Toxic action- Acute toxicity	Selected readings from Chapter 10	**Quiz 1A opens 9:00 am Monday**
Week 5 - 07 Aug 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Chronic toxicity- carcinogens, mutagens and teratogens	Selected readings from Chapters 11 & 12	**Quiz 1A closes 9:00am Monday**
Vacation Week - 14 Aug 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Week 6 - 21 Aug 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Target organs and systems	Selected readings from Chapters 13 & 14	
Week 7 - 28 Aug 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Target organs and systems cont'd	Selected readings from Chapters 16 & 18	
Week 8 - 04 Sep 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Risk assessment	Selected readings from Chapters 20 & 23	**Quiz 1B opens 9:00am Monday**
Week 9 - 11 Sep 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Toxicants in the environment	Selected readings from Chapter 25	**Quiz 1B closes 9:00am Monday**
Week 10 - 18 Sep 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Toxicants in the environment- cont'd	Selected readings from Chapter 27	
Week 11 - 25 Sep 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Regulation and ethics	Selected readings from Chapter 22	
Week 12 - 02 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Future considerations	Selected readings from Chapter 29	**Report** Due: Week 12 Friday (6 Oct 2023) 11:59 pm AEST
Review/Exam Week - 09 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Exam preparation		
Exam Week - 16 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
		Take home exam Due: Exam Week Tuesday (17 Oct 2023) 5:00 pm AEST

Assessment Tasks

1 Online Quiz(zes)

Assessment Type
Online Quiz(zes)

Task Description

- The quizzes will become available at 9:00am on the Monday of Weeks 4 and 8 and remain open until 9:00am on the following Monday (Weeks 5 and 9).
- There is no time limit to complete the quiz and you can save your quiz and return to it later (while the quiz is available)
- You will get your final result from the quiz showing which questions you got right or wrong. This will let you know what areas you need to study/revise.
- You should choose the most correct answer.

Number of Quizzes
2

Frequency of Quizzes
Other

Assessment Due Date

9:00am Monday Week 5 and 9:00am Monday Week 9.

Return Date to Students

After each quiz has closed.

Weighting
20%

Assessment Criteria
Quiz 1A will assess the student's knowledge of general principles of toxicology, the different types and classes of toxins and basic toxicokinetics.
Quiz 1B will assess the student's knowledge of toxic actions, endpoints and organ/system toxicity.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Define fundamental toxicological concepts
- Identify and classify a range of common toxicants and their environmental sources
- Explain the dose-response relationship and its implications and applications

Graduate Attributes

- Communication
- Critical Thinking
- Information Literacy

2 Report

Assessment Type
Written Assessment

Task Description
As an environmental toxicologist, you have been asked to provide an opinion and recommendations on an environmental toxicant, which will be provided to you on Moodle. In your response, you should include:

- a review of the literature relating to the toxicant, including a summary of:
    - the active substance
    - mechanisms of exposure
    - acute measures of toxicity, NOAEL, dose-response, etc.
    - toxicokinetics, biotransformation, target organs and endpoints
    - the potential effects of chronic exposure
    - evidence from research in the field
- an assessment of the exposure and risk associated with the toxicant
- a discussion of the benefits and concerns
- your considered opinion, based on the evidence you have reviewed

- your recommendation for action

Length: 3000 words (10% under- 20% over is acceptable).
As with any report, you should use appropriate evidence to support your statements. There is no prescribed format for this task but your report should use relevant headings and subheadings to guide the reader. A Table of Contents and Executive Summary is not required.

Assessment Due Date
Week 12 Friday (6 Oct 2023) 11:59 pm AEST

Return Date to Students
Exam Week Friday (20 Oct 2023)

Weighting
40%

Minimum mark or grade
You must achieve a passing grade for this item and an overall composite grade of 50% to be eligible to pass the unit.

Assessment Criteria
This assessment task will be assessed according to the following criteria:
Relevance (30%)

- summarises relevant toxicological information from credible and reputable sources
- report is relevant to the scenario
- makes appropriate connections between evidence, opinion and recommendations
- uses appropriate methodology to assess risks

Validity (40%)

- depth and extent of discussion of the evidence presented
- accuracy of the application of evidence to opinion and recommendations
- draws appropriate conclusions from assessment of risks
- opinion and recommendations have been based on critical thought, analysis of the evidence and synthesis of new ideas
- depth and range of evidence

Organisation (20%)

- quality of consideration of the required components- attention paid to toxicological information, health effects, endpoints etc, opinion is clearly expressed, recommendations are reasonable
- structure and flow of information
- coherence and clarity of expression (spelling, grammar, syntax)

Presentation (10%)

- style and formatting of report
- typographical matters (types, font, etc.)
- referencing is consistent and in accordance with Harvard style
- length

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Apply the principles of risk assessment and risk management to toxicological situations
- Discuss major issues in environmental toxicology relating to exposures from natural and anthropogenic sources
- Critically consider the ethical and regulatory implications of toxicological research, associated uncertainties and risk communication.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

- Cross Cultural Competence
- Ethical practice

3 Take home exam

Assessment Type
Take Home Exam

Task Description
The Take Home Exam will examine all aspects of the unit content. it will be made available at 9am on Monday of Exam Week and be due at 5pm on Tuesday of Exam Week. The exam will be in Word format and be **open book**. You will need to **save the file to your local device and upload the completed document to Moodle**.

Assessment Due Date
Exam Week Tuesday (17 Oct 2023) 5:00 pm AEST

Return Date to Students

After Certification of Grades.

Weighting
40%

Minimum mark or grade
You must achieve a passing grade for this item and an overall composite grade of 50% to be eligible to pass the unit.

Assessment Criteria

1. Define fundamental toxicological concepts
2. Identify and classify a range of common toxicants and their environmental sources
3. Explain the dose-response relationship and its implications and applications
4. Describe fundamental processes and endpoints relating to toxicants within the human body

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Define fundamental toxicological concepts
- Identify and classify a range of common toxicants and their environmental sources
- Explain the dose-response relationship and its implications and applications
- Describe fundamental processes and endpoints relating to toxicants within the human body

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking

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