



# EVST13015 Mining, Urban & Industrial Lands Rehabilitation

## Term 2 - 2021

Profile information current as at 17/05/2022 02:03 pm

All details in this unit profile for EVST13015 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 will cover essential knowledge of natural and impacted (mining, urban and industrial) landscape features and their management. You will gain a theoretical and practical understanding of landforms, biogeography, and the effects of natural and man-made impacts on the sustainability of local ecosystems. You will also learn how erosion control, vegetation surveys, modern techniques of rehabilitation, productive use of degraded land and rehabilitation success criteria are used to return disturbed landscapes into sustainable or productive ecosystems. You will gain practical experience through field trips to disturbed and rehabilitated sites. The emphasis will be on Central Queensland sites with links to broader Australian landscapes.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Students must have completed 72 units of credit.

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 - 2021

- Mixed Mode
- 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. **Practical and Written Assessment**

Weighting: 30%

#### 2. **Written Assessment**

Weighting: 20%

#### 3. **Online Test**

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 Have your say

**Feedback**

Unit has a lot of important information that will be used in careers

**Recommendation**

This information will be enriched to ensure that the students will learn state-of-the-art techniques and procedures in landscape management

#### Feedback from Have your say

**Feedback**

Residential school was very engaging

**Recommendation**

These practices will be continued and where possible, they will be improved.

#### Feedback from Have your say

**Feedback**

Provide a working example of the online test

**Recommendation**

A practice online test quiz will be uploaded and the students will be instructed to practice it before taking the final online test.

#### Feedback from Have your say

**Feedback**

Assessment return to be specified and implemented

**Recommendation**

The assessment return date will be mentioned on the Moodle site, and the marked assessments will be returned to the students as per this schedule.

#### Feedback from Have your say

**Feedback**

Moodle navigation to be streamlined

**Recommendation**

The switch to new Moodle buttons, and re-organisation of the contents should improve Moodle navigation.

## Unit Learning Outcomes

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

1. Describe key features of the biogeographic landscape
2. Discuss the impacts of mining, urbanisation, industrial development and tree clearing activities on the sustainability of Australian landscapes
3. Conduct land and vegetation surveys, simulate erosion events and describe disturbed land rehabilitation techniques
4. Analyse the techniques used in the rehabilitation of degraded Australian landscapes
5. Design a protocol for rehabilitation and/or sustainable management of a disturbed landscape
6. Assess the criteria used to determine cost effectiveness and success of rehabilitation processes.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 20%	•				•	
2 - Practical and Written Assessment - 30%	•	•	•	•	•	•
3 - Online Test - 50%	•	•	•	•	•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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 - Written Assessment - 20%	•	•					•			
2 - Practical and Written Assessment - 30%		•			•	•	•	•		
3 - Online Test - 50%	•	•	•	•						

## Textbooks and Resources

### Textbooks

EVST13015

#### Prescribed

#### Restoring Disturbed Landscapes Putting Principles into Practice

(2011)

Authors: Tongway, D & Ludwig, J

Island Press

Washington DC , Washington , USA

Binding: Paperback

#### Additional Textbook Information

An eBook is available at the following link: <https://link.springer.com/book/10.5822/978-1-61091-007-1>

If you prefer to study with a paper text, you can purchase one at the CQUni Bookshop here:

<http://bookshop.cqu.edu.au> (search on the Unit code).

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- GIS - download free software
- Microsoft Excel or similar
- RUSLE (Universal Soil Loss Equation) software to be downloaded onto Uni computers.

## Referencing Style

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

For further information, see the Assessment Tasks.

## Teaching Contacts

**Nanjappa Ashwath** Unit Coordinator

[n.ashwath@cqu.edu.au](mailto:n.ashwath@cqu.edu.au)

**Pramod Shrestha** Unit Coordinator

[p.shrestha@cqu.edu.au](mailto:p.shrestha@cqu.edu.au)

## Schedule

### Week 1 - 12 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Landscape ecology, biogeography and restoration approaches. Tools to assess vegetation and ecosystem status. Indicators of ecosystem functions.	Tongway & Ludwig, Chapters 13 and 16 Online Readings.	Read about Landscape Function Analysis (LFA): the principles and practices

### Week 2 - 19 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Geology, soils and impacts of disturbance on soil systems.  
Tools to assess vegetation and ecosystem status.  
Indicators of ecosystem functions (except erosion).

Tongway & Ludwig, Chapter 14  
Readings online.

Closely examine the case studies where LFA has been applied to evaluate success of restoring damaged ecosystems.

### Week 3 - 26 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
The soil-water interface: soil loss and planning to reduce erosion. Landform design and erosion control, and tools to assess erosion.	Tongway & Ludwig, Chapter 15 Online readings	Familiarise with the procedures used in evaluating success of rehabilitation using Landscape Function Analysis (LFA). Identify and choose the data forms to be used to collect data from the field, and prepare a protocol for undertaking LFA

### Week 4 - 02 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Restoration of mine sites - with a particular focus on open-cut mining.	Tongway & Ludwig, Chapters 4 and 8.	<b>Submit the DRAFT protocol for conducting LFA on a disturbed site.</b> <b>Due Date: 2nd August 2021, 11.45 pm, AEST</b>  <b>Compulsory Residential School at Rockhampton North campus</b> <b>5th August to 7th August 2021</b> <b>(Bldg 9 Room G 14; Time 8 am to 6 pm)</b>

### Week 5 - 09 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Restoration of mine sites - rehabilitation of waste-rock dumps and tailings management.	Tongway & Ludwig, Chapters 6 and 7.	Analyse your residential School data for Assignment 1

### Vacation Week - 16 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Please work on your draft report which outlines how you will endeavor to evaluate the success of a rehabilitated landscape, in accordance with the guidance provided in your text book and the Moodle resources. Submit this report on time so the lecturer can correct and hand it back to you on Day 1 of the residential school.		Read literature relevant to your Assignment 1

### Week 6 - 23 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Restoring damaged range lands, with a particular focus on range lands that are encroached by an overabundance of woody shrubs and trees.	Tongway & Ludwig, Chapters 5 and 9.	Update your Assignment draft report.

### Week 7 - 30 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic

Restoration of farmland to enhance biodiversity and productivity.  
Restoration of former farmlands and forests in the peri-urban development zone.

Tongway & Ludwig,  
Chapters 10 and 11

Further improve your Assignment 1 report

#### Week 8 - 06 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Restoration of road verges after road construction. Restoration of managed native vegetation transition zones.	Tongway & Ludwig, Chapter 12 Readings online (Spooner and Lunt ).	Submit your Assignment 1 final report  <b>Evaluation of a Restored Landscape</b> Due: Week 8 Friday (10 Sept 2021) 11:45 pm AEST

#### Week 9 - 13 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Restoration of waste management facilities, refuse dumps and other sites requiring capping, burial or removal.	Online readings	Start working on your Assignment 2. Visit local impacted sites.

#### Week 10 - 20 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Criteria used in determining cost effectiveness and success of rehabilitation - budgets, scoping, planning, monitoring and evaluation when working on a restoration project.	Online readings	Collect and compile data for your Assignment 2

#### Week 11 - 27 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
GIS and mapping in integrated landscape assessment and planning.	Online readings	Finalise your Assignment 2

#### Week 12 - 04 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
Statistical analysis of plant and landscape parameters Summary and conclusions.	Online readings	<b>Submit your Assignment 2</b>  <b>Landscape Impact Assessment</b> Due: Week 12 Friday (8 Oct 2021) 11:45 pm AEST

#### Review/Exam Week - 11 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
		The date and the time for Open Book Online Test will be decided during Residential School in consultation with all the participants. The online test will be scheduled either in Review week or in Exam week.

#### Exam Week - 18 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
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## Term Specific Information

Please note that Assignment 1 has two phases. The first phase is to prepare a draft report.

The second phase is to collect field data, analyse the data so the results can be added to the draft report to convert it into a final report.

Since the residential school is scheduled for week 5, you will have limited time available to prepare for the Landscape Function Analysis (LFA). Your effort in learning the principles of LFA, asap, will greatly assist in your preparation for the residential school.

## Assessment Tasks

### 1 Evaluation of a Restored Landscape

#### Assessment Type

Practical and Written Assessment

#### Task Description

##### Evaluation of a Restored Landscape (30% of the Unit marks).

This assignment consists of two parts or phases.

In Phase 1, the students will prepare a DRAFT REPORT consisting of introduction to Landscape Function Analysis (LFA) and examination of some case studies where LFA has been applied to assess success of rehabilitation (literature search). Students will also outline the procedures used in LFA, and select appropriate templates to collect data from the field site. In Phase 2, the students will visit a field site during residential school. Students will collect data using templates that are chosen in Phase 1. Following residential school, the students will analyse the data, carry out further literature search and write up these results, independently, in the form of a FINAL REPORT.

#### Background:

Landscape restoration can occur in three stages, viz., **planning, execution** (on-site restoration) and **evaluation** of restoration success. In this assignment, you will gain experience in evaluating the success of a restored landscape. First, you will collect recent literature on the topic and prepare a protocol (procedure) for collecting the field data. You will write this up and submit as a **Draft Report**. You will then visit the field site during residential school to collect data. You will analyse these data and discuss the trends, in line with the published literature. You will then incorporate this information into the draft report to produce the **Final** report.

#### Phase 1 activity

Phase 1 is a planning exercise wherein you will collect information on restoration practices via SCOPUS database and through reading your text book to highlight various approaches used in restoring disturbed sites, particularly in evaluating the success of restoration. Please note: details of the site you will visit during residential school will be listed on the Moodle site within a week from the commencement of the Term.

You will then develop a protocol to collect relevant data from the restored field site according to Landscape Function Analysis (LFA). The protocol includes compilation of relevant data collection forms and familiarization of the way in which these templates are used and the data collected.

This draft report (approx. 1500 words) must be submitted on-line on the **2nd August 11.45 pm**.

Please note: you will not be reminded of this due date by the Moodle, as it is only an interim report!. You will only be reminded for the final report.

The lecturer will review the report and return the hard copy of the report to students, along with his comments, on day 1 of the residential school. Protocols contained in the Interim report, including those added by the lecturer (considering site conditions) are to be used in executing Phase 2 activities in the field.

#### Phase 2 activity

You will carry out the **Landscape Function Analysis** task on a restored/rehabilitated site during residential school, based on the protocols you would have developed in Phase 1 (please use the lecturer-amended draft Report). You will collect the data from the field site, as a GROUP activity, but will analyse the data, and write up results, discussion and conclusions INDIVIDUALLY. You will add this information to the draft report and update literature search. The updated draft report will now become the **Final** report. This report must include title, author details, affiliation, abstract, key words, contents page, materials and methods, results, discussion, conclusions, acknowledgments, references and appendices (approx. 3000 words excluding tables, photos and figures).

#### Assessment Due Date

Week 8 Friday (10 Sept 2021) 11:45 pm AEST

You can upload the report on to the Moodle site after Turnitin check up.

#### Return Date to Students

Week 10 Friday (24 Sept 2021)



**Weighting**

30%

**Minimum mark or grade**

50% of the marks allocated for this task

**Assessment Criteria**

The marker will assess the following skills and attributes of your work when reading your submission:

1. Planning of restoration (LFA) evaluation tasks - how well the plan has been prepared taking into consideration the requirements of the project and the availability of resources.
2. Information literacy skills - correct and appropriate SCOPUS referencing, and the evidence that you have referred to a broad range of credible sources (eg journal articles) of information, and represented these sources accurately
3. Communication skills - did you write clearly, succinctly, within the word count and formatting skills? Did you present and communicate data as recommended in the unit lectures and tutorials?
4. Data analysis and presentation - how well the data is processed and presented via graphs and tables, using appropriate IT software packages.
5. Critical thinking skills - have you considered the current trends in disturbed habitats restoration within your initial project plan? how does the site you have inspected differ from the ones you have reviewed? Can you see any trends in the data you have collected?
6. Have you critiqued the management/restoration options appropriately, including positive and negative aspects of the rehabilitation work undertaken by the site owner?

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Students should upload a doc, docx or rft file via the Moodle site.

**Learning Outcomes Assessed**

- Describe the key features of the biogeographic landscape
- Discuss the impacts of various activities such as tree clearing and mining on the sustainability of local ecosystems
- Conduct land and vegetation surveys, simulate erosion events and describe land remediation techniques
- Analyse techniques used in the remediation of degraded landscapes and discuss those relevant to Australian ecosystems
- Design a protocol for remediation and/or sustainable management of a disturbed landscape
- Assess the criteria used to determine cost effectiveness and success of remediation process.

**Graduate Attributes**

- Problem Solving

## 2 Landscape Impact Assessment

**Assessment Type**

Written Assessment

**Task Description****Landscape Impact Assessment (20% of unit marks).**

You are required to identify actual or potential impacts of commercial activities, such as mining, smelting, industrial development, agriculture, aquaculture or tourism on landscapes of the place where you currently live (within a radius of 100 km). You will then choose any FOUR of these impacts for this assignment by giving preference to those impacts that will be studied in the residential school.

You may use Google Earth/Queensland Globe maps, on-line information, news articles, company reports of your choice to describe the impacts of such commercial activities on local landscapes.

You will then explain the way those impacts/disturbances are being managed at present, with some indication of their effectiveness. Finally, you will research suitable rehabilitation/remediation plans (historic and ideal), and suggest possible improvements to minimise or avoid those impacts (report size: approx. 2500 words).

Journal articles and other credible sources of information should be used in finding solutions to rehabilitating impacted sites (see the Moodle site for further details).

**Assessment Due Date**

Week 12 Friday (8 Oct 2021) 11:45 pm AEST

Please upload the document on to the Moodle site after Turnitin check up.

**Return Date to Students**

Exam Week Friday (22 Oct 2021)

Returned via Moodle site

**Weighting**

20%

**Minimum mark or grade**

50% of the marks allocated for this assignment

**Assessment Criteria**

The marker will assess the following skills and attributes of your work:

1. Identification of appropriate sources of impacts, provision of **photos** and description of the impacts (50%).
2. Information literacy skills - correct and appropriate referencing, and the evidence that you have referred to a minimum of **FIVE** credible sources of information, such as journal articles (10%).
3. Communication skills - write clearly and succinctly within the word count, and use appropriate formatting skills (20%).
4. Critical thinking skills - consider several possible scenarios that might mitigate the impacts, and discuss positive and negative aspects of each scenario (20%).

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Upload a word document via the Moodle site

**Learning Outcomes Assessed**

- Describe the key features of the biogeographic landscape
- Design a protocol for remediation and/or sustainable management of a disturbed landscape

**Graduate Attributes**

- Communication

## 3 Open book online test

**Assessment Type**

Online Test

**Task Description**

An open book online written test will be conducted during examination week.

Duration of the test is 3 hours.

This test will cover the topics learnt via theory, tutorial, assignments and residential school.

The questions may consist of 'write short answers', 'differentiate between two terms/concepts' and 'description of a habitat or a concept'.

Online type-written answers are accepted. Your answers must be of your own work and they will be checked by 'Turnitin'. Any potential collusion will result in a breach of academic integrity.

**Assessment Due Date**

The test will be conducted during review/exam week. Please check the Moodle announcement for the date and time of the test.

**Return Date to Students****Weighting**

50%

**Minimum mark or grade**

50% of the marks allocated for this task.

**Assessment Criteria**

Marks will be allocated in accordance with the appropriateness of the answers and the details provided.

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Please use the Moodle site to answer online test questions

**Learning Outcomes Assessed**

- Describe the key features of the biogeographic landscape
- Discuss the impacts of various activities such as tree clearing and mining on the sustainability of local ecosystems
- Analyse techniques used in the remediation of degraded landscapes and discuss those relevant to Australian ecosystems
- Assess the criteria used to determine cost effectiveness and success of remediation process.

**Graduate Attributes**

- Critical Thinking
- Information Literacy

## 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