MICROCREDENTIAL

MACQUARIE University
SYDNEY·AUSTRALIA

Use of Geomorphology in River Management

IDENTIFY SOLUTIONS FOR RIVER CONSERVATION, MANAGEMENT AND REHABILITATION IN AUSTRALIA

SUMMARY

Progressive river management industries use advanced understandings of geomorphology in practice. Such knowledge informs the implementation of conservation or rehabilitation activities to treat ecosystem health problems and mitigate the effects of droughts and floods.

The Use of Geomorphology in River Management microcredential will improve your knowledge of using geomorphology in practice, with a focus on identifying treatment solutions and techniques, river rehabilitation project design and adaptive management approaches. You'll first attend an online tutorial introducing you to fluvial geomorphology concepts and river management. The in-person component begins with a four-day field trip where you'll participate in practical activities. You'll then continue your learning on campus in an active learning environment that includes a mix of short presentations and a range of practical learning activities.

KEY FEATURES

- **Gain recognition towards further study**
  Successfully complete this microcredential and you may receive RPL towards a graduate certificate or diploma.
- **Enhance your employability**
  Upskill, reskill and extend your knowledge of river management.
- **Learn from world-renowned experts**
  Interact with teachers and colleagues in an active learning environment.
- **Undertake hands-on learning in a real-world setting**
  Apply your skills and knowledge during a four-day field trip.

KEY DETAILS

MODE
Online, on campus and off campus

DURATION
Online, self-directed pre-work will be available after 27 November 2023

4-day field trip (Hunter Valley):
Friday 12 January 2024 – Monday 15 January 2024

4-days on campus (North Ryde):
Tuesday 16 January 2024 – Friday 19 January 2024

LOCATION
- Hunter Valley, NSW
- Wallumattagal Campus, North Ryde NSW 2109

WHO SHOULD ATTEND?
Professionals operating in the river science or environmental management spaces who are looking to upskill or reskill.

This microcredential is best undertaken after the Geomorphic Analysis of Rivers microcredential unless you already have geomorphology training. Please contact the unit convenor to discuss if this applies to you.

USE OF GEOMORPHOLOGY IN RIVER MANAGEMENT

EXPLORE RIVER CONSERVATION
and rehabilitation strategies in an Australian context

STUDY IN AN ACTIVE LEARNING ENVIRONMENT
designed to foster collaboration and practical learning

BE AN ENVIRONMENTAL CHAMPION
by learning how to conserve and rehabilitate rivers

LEARNING OUTCOMES

- Use a range of information sources to develop an understanding of the pressing challenges faced in river conservation and management in Australia.
- Apply geomorphic science to the solution of river conservation, management and rehabilitation issues.
- Identify and use appropriate field assessment approaches to measure, analyse and interpret river conservation, management and rehabilitation solutions.
- Demonstrate communication skills using oral, visual and written formats to convey an advanced understanding of the use of geomorphology in river management.

WHO YOU'LL LEARN FROM

KIRSTIE FRYIRS – PROFESSOR
Professor Kirstie Fryirs – School of Natural Sciences at Macquarie University and certified geomorphologist – is renowned for her work on fluvial geomorphology and river management. She researches the structure and function of rivers; how they adjust and evolve; how they've been impacted by anthropogenic disturbance; and how geomorphology can best be used in river conservation, recovery and rehabilitation. She also researches how catchment sediment budgets and (dis)connectivity operate, and how rivers and catchments may respond to future disturbances, particularly floods and droughts.

TIM RALPH – SENIOR LECTURER
Dr Tim Ralph researches the geomorphology of rivers and wetlands in dry landscapes, with extensive work undertaken in the Murray–Darling Basin in Australia, and in Africa. Specifically, he seeks to understand patterns and processes of fluvial landform change, sediment dynamics, aquatic ecosystem function, and interactions between people and rivers/wetlands in the context of long-term landscape evolution and environmental change. He's recognised internationally for his research and involvement with capacity-building programs assessing soil erosion and sediment transport using nuclear techniques with the International Atomic Energy Agency. Prior to his academic appointment, he was a senior environmental scientist with the New South Wales Government.

"This microcredential really illustrates how geomorphology is desperately needed front and centre if we are to solve river health and rehabilitation challenges going forward."

Danelle Agnew
USE OF GEOMORPHOLOGY IN RIVER MANAGEMENT MICROCREDENTIAL GRADUATE

HOW YOU'LL LEARN

PRE-RECORDED ONLINE TUTORIAL 2 HOURS	Once you receive access to the online learning platform, ProLearn, listen to the pre-recorded online tutorial. This tutorial introduces the microcredential and outlines the arrangements you need to make for both the on-campus days and field trip, including group set-up, accommodation bookings and transport arrangements. The online tutorial also contains a self-directed questionnaire that will establish your level of proficiency in fluvial geomorphology and river management, and help you determine how much pre-microcredential preparation you'll need to undertake. You can do this non-assessable questionnaire in your own time.
ONLINE PRE-MICROCREDENTIAL WORK 4 HOURS	You'll undertake self-directed pre-work via ProLearn, which involves a set of preparatory readings. If you have experience in fluvial geomorphology, this will be refresher material. If not, this material will establish some foundational understanding. If you have no foundation knowledge of fluvial geomorphology, you should consider enrolling in the Geomorphic Analysis of Rivers microcredential that runs immediately before this microcredential.
FIELD TRIP: HUNTER VALLEY 4 DAYS	You'll undertake site assessments and mapping, surveying and sediment analysis to analyse river character, behaviour and evolution in the field. You'll also visit a number of river management sites and discuss the use of geomorphology in river management.
ON-CAMPUS SESSIONS 4 DAYS, 9AM – 5PM	You'll undertake activities individually, in small groups and as a class. Each short introduction session is followed by an active learning practical activity that will reinforce your learning.

FIND OUT MORE
microcredentials.mq.edu.au/courses/use-of-geomorphology-in-river-management

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