



Environment Institute
of Australia and
New Zealand Inc.

Canberra Environment and Soils Short Course

When: 10-11th October 2022

Time: 9.00 – 5.00 pm

Where: University of Canberra

Cost: \$470 for EIANZ and SETAC Members
\$650 for non-members

RSVP: 07th October 2022

Contact: Kelly Lee (Kelly.lee@lanterra.com.au)

Event sponsored by



EIANZ ACT Division and SETAC are proud to host the second Canberra Soils Short Course on the 10-11th of October!

Building on the short soil course delivered in April 2021, SETAC and EIANZ will deliver a refresher on Canberra geology. The focus is to better understand the relationships between soils, landscapes, groundwater, geology and vegetation types, as well as soil-groundwater interactions. The course includes a **field trip to Dairy Hill and Black Mountain**, with the topics delivered by:

- **Peter Fogarty** — Consultant Soil Scientist, Certified Professional Soil Scientist
- **Ken McQueen** — Geologist and geochemist
- **Leah Moore** — Hydrogeologist

The 2-day course is a refresher on how to identify rock types, the relationship of soils to geology and vegetation, metals in soils, their bioavailability, and how they relate to plants and geology, and groundwater behaviours in the Canberra Region. **This course is highly relevant for those who work in the fields of contaminated lands, soil nutrition, or natural resource management.**

CANBERRA ENVIRONMENT AND SOILS SHORT COURSE: SOIL ASSESSMENT, GEOLOGY, AND GROUNDWATER

University of Canberra | 10-11 October 2022

Introduction

This is a two-day course for all those who work with soils in and around the Canberra region and specifically those who work in the fields of contaminated lands, soil nutrition, or natural resource management. The course will allow attendees to understand the relationships between soils, landscapes, groundwater, the geology and vegetation types, as well as soil-groundwater interactions.

Building on the short course delivered in March 2021, we will deliver a refresher on Canberra geology and how to identify rock types, the relationship of soils to geology and vegetation, metals in soils, their bioavailability, and how they relate to plants and geology. Content on how groundwater behaves in the Canberra region will also be delivered. While the March 2021 course delivered content specific to the toxic soils of Gossen Hill, this course will focus on the soils surrounding Dairy Hill and Black Mountain—soils more typical of the Canberra area, but subject to limitations of their own. The course will provide attendees with the skills to identify key Canberra rocks, know likely mineral assemblages in these rocks, and how these minerals affect metal concentrations in soils. Weathering and soil-forming processes specific to these landforms will be outlined, as well as soil survey techniques, including soil description and classification. An understanding of how groundwater behaves and its impact on the Canberra environment will also be covered.

Day one of the course will be presented as a combination of lectures and practical sessions on rocks, regolith, soils and groundwater processes. Day two will include visits to Dairy Hill and Black Mountain, to illustrate the concepts covered in the lectures and practical sessions, as well as highlighting some of the soil related environmental issues in Canberra.

The course is fully catered for morning and afternoon tea and lunches

Objectives

- Practice basic soil assessment
- Understand how Canberra soils are connected to the geology, with a particular focus on metals
- Appreciate the links between landscaped, hydrology, and soil development
- Understand how to assess the hazards presented by potentially toxic metals in Canberra soils

Lecturers

Peter Fogarty — Consultant Soil Scientist, Certified Professional Soil Scientist

Ken McQueen — Geologist and geochemist

Leah Moore — Hydrogeologist

Day one (Monday 10 October 2022) — Lectures and practicals

Time	Event
0830 – 900	<i>Welcome mixer – meet and greet</i>
0900 – 0945	Introduction to the course – lecturer background, facilities locations, course plan
	Rock block
0945 – 1030	Canberra geology – the rock story; rock types, formation types, major structures and their impact
1030 – 1100	<i>Break</i>
1100 – 1145	To be confirmed
1145 – 1230	Metals in soils
1230 – 1330	<i>Lunchbreak</i>
1330 – 1415	Practical session – example rock types
	Soils block
1415 – 1500	The groundwater story — vadose zone hydrogeology, deeper groundwater, water quality, flow, and flow assessment
1500 – 1545	Soil survey 101 – A, B, C horizons, soil texture analysis, structure assessment, soil classification, how to interpret these for contaminated lands
1545 – 1600	<i>Afternoon tea break</i>
1600 – 1645	Soil refresher; Soil types and locations, vegetation types on these soils, and how these relate to the geology

Day two (Tuesday 11 October 2022) — Field day

Time	Event
0830 – 900	<i>Site visit</i>
	Geology
0900 – 0945	Dairy Hill lookout to point out rock types, weathering profile, soils, groundwater, and geochemical dispersion of the local area.
0945 – 1030	Arboretum soil profile assessment
1030 – 1100	<i>Break</i>
1100 – 1230	Dairy Hill area soil survey, using hand augers to describe and classify soil profiles and their impact on vegetation and geochemistry at different points along the slope
1230 – 1330	<i>Lunchbreak</i>
	Soils
1330 – 1500	Black Mountain and the influence of weathering, and interpretation of complex and old soil horizons
1500 – 1515	<i>Afternoon tea break</i>
1515 – 1630	Aranda Snowgums and the assessment of multiple drivers of landscape development, including aeolian, alluvial, and colluvial deposits, and their influence on plants and geochemistry
1630 – 1645	Close of short course