MONASH University **Handbook**

Unit

EAE4069 - Data analysis in earth sciences

Faculty:
Faculty of Science

Owning organisational unit:
School of Earth, Atmosphere and Environment

Study level:
Postgraduate

SCA band:
2

EFTSL:
0.125

Credit points:
6

Open to exchange or study abroad students?
No

Overview

This unit will provide you with the skills needed for advanced data analysis in Earth Sciences using Python. You will learn techniques for managing, analysing and communicating complex data based on real-world scenarios or your own research. The analysis component will include standard methods such as correlations, power spectra, regridding and curve-fitting.

Offerings

S1-01-CLAYTON-ON-CAMPUS

Location: Clayton

Teaching period: First semester

Attendance mode: Teaching activities are on-campus (ON-CAMPUS)

Rules

Enrolment Rule

COREQUISITE: Enrolment in the Master of Science

PROHIBITION: EAE5069

Contacts

Chief Examiner(s)

Dr Andrew Gunn

Email: A.Gunn@monash.edu

Offering(s):

- Applies to all offerings

Unit Coordinator(s)

Dr Andrew Gunn

Email: A.Gunn@monash.edu

Offering(s):

- Applies to all offerings

Learning outcomes

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

1.	Apply advanced programming to manage and manipulate data in Python;
2.	Apply major techniques of data analysis in earth science;
3.	Communicate data-analysis results at the level of peer-reviewed research papers;
4.	Publish reproducible methodology using best practice for open-source data analysis;

5. Be able to independently asses and troubleshoot data analysis coding problems.

Teaching approach

Peer assisted learning

Students helping other students with coding.

Active learning

Student coding in class.

Assessment

Extended abstract

Report with figures demonstrating use and interpretation of research data with Python.

Value %: 50

Code publishing

Well-written code published with a DOI to the standard of peer-reviewed literature practice.

Value %: 25

Lightning presentation

Presentation with figures demonstrating use and interpretation of research data with Python.

Value %: 25

Scheduled and non-scheduled teaching activities

Workshops

Total hours: 50 hours

Offerings:

- Applies to all offerings

Workload requirements

Workload

This unit is taught in an intensive manner over 6 weeks as follows:

- 20 hours of interactive workshops (Weeks 1 and 2) and
- One, 5-hour workshop per week (Weeks 3 and 4) plus
- 94 hours of independent study over 6 weeks, which will include guided activities and preparation of a major assessment

Learning resources

Required resources

Laptop

Availability in areas of study

Master of Science

Master of Science