

ACE Network Subject Guide

Time Series

Semester 2, 2025

Administration and contact details

Host department	School of Mathematical Sciences
Host institution	Macquarie University
Name of lecturer	Assoc. Prof. Tania Prvan
Phone number	02 98508561
Email address	tanja.prvan@mq.edu.au
Homepage	https://researchers.mq.edu.au/en/persons/tania-prvan
Name of honours coordinator	NA
Phone number	NA
Email address	NA
Name of masters coordinator	Dr Nan Zou
Phone number	02 98508926
Email address	nan.zou@mq.edu.au

Subject details

Handbook entry URL	TBD
Subject homepage URL	TBD
Honours student hand-out URL	TBD
Teaching period (start and end date):	28 July 2025 - 9 Nov 2025
Exam period (start and end date):	10 Nov 2025 - 28 Nov 2025
Contact hours per week:	2
ACE enrolment closure date:	TBD
Lecture day(s) and time(s):	TBD
Description of electronic access arrangements for students (for example, LMS)	TBD

Subject content

1. Subject content description

This unit is an introduction to Time Series Analysis and Forecasting. This unit introduces methods suitable for forecasting including the decomposition of time series, exponential smoothing methods, ARIMA modelling, and regression with autocorrelated disturbances.

2. Week-by-week topic overview

- 1 Introduction
- 2 Time series graphics
- 3 Time series decomposition
- 4 Time series features
- 5 The forecaster's toolbox
- 6 Time series regression models
- 7 Exponential smoothing
- 8 Exponential smoothing
- 9 ARIMA models
- 10 ARIMA models
- 11 ARIMA models
- 12 Dynamic Regression models
- 13 Revision

This is subject to revision, some topics may be expanded and others condensed.

3. Assumed prerequisite knowledge and capabilities

Knowledge of probability distribution, expectation, conditional expectation, confidence interval, hypothesis testing and perhaps likelihood; familiarity with the R programming language.

4. Learning outcomes and objectives

On successful completion, a student will be able to

1. provide an understanding of common statistical methods used in forecasting
2. develop computer skills for forecasting time series data
3. provide insights into the problems of large scale forecasting systems

5. Learning resources

Rob J Hyndman and George Athanasopoulos (2021) Forecasting: principles and practice, 3rd edition, OTexts: Melbourne, Australia.

The online version of this book could be found at <https://otexts.com/fpp3/>

6. Assessment breakdown

Portfolio	25 %
Assignment	25 %
Exam	50 %

Assignment due dates	Exam date (approximate)
Week 8 (Portfolio)	10 Nov 2025 - 28 Nov 2025
Week 12 (Assignment)	

Institution honours program details – To be determined

Weight of subject in total honours assessment at host department	
Thesis/subject split at host department	
Honours grade ranges at host department	
H1	Enter range %
H2a	Enter range %
H2b	Enter range %
H3	Enter range %

Institution masters program details – To be determined

Weight of subject in total masters assessment at host department	
Thesis/subject split at host department	
Masters grade ranges at host department	
H1	Enter range %
H2a	Enter range %
H2b	Enter range %
H3	Enter range %