The University of Melbourne

School of Mathematics and Statistics

MAST90139 Statistical Modelling for Data Science

Information Sheet (*Semester 1, 2025*)

Lecturer: A/Prof. Guoqi Qian, Room G22, Peter Hall Building
Tel: 8344 4899; Email: qguoqi@unimelb.edu.au

Time & Venue:

- *Lecture 1*: **Wednesday** 16:00-17:00 in *PAR-115-L2-200-Rivett Theatre (256)*
- *Lecture 2*: **Thursday** 11:00-12:00 in *PAR-115-L2-200-Rivett Theatre (256).*
- *Practice*: 1 hour per week; starting from **week 2**; check the timetable on LMS.
- *Office Consultation*: **Thursday** 10:00-11:00 and 12:30 - 14:30

Prerequisites: MAST90104 A First Course in Statistical Learning, and MAST90105 Method of Mathematical Statistics.

Webpage: https://lms.unimelb.edu.au/canvas

Overview: Statistical models are central to data science applications. Modelling approaches such as linear and generalized linear models, mixed models, and non-parametric regression are developed. Applications to time series, longitudinal, and spatial data are discussed. Methods for causal inference and handling missing data are introduced.

Assessment: 45% for 3 assignments, and 55% for a 3-hour written final examination.

References: The lecture slides and material covered during lectures and practice classes form the formal contents, and are available on Canvas. They are prepared mostly based on the following reference:

- Faraway, Julian (2006). *Extending the Linear Model with R — Generalized Linear, Mixed Effects and Nonparametric Regression Models.* Chapman & Hall/CRC. *Its second edition Faraway (2016) is also fine.*