

ST344-15 Professional Practice of Data Analysis

24/25

Department

Statistics

Level

Undergraduate Level 3

Module leader

Barbel Finkenstadt Rand

Credit value

15

Module duration

10 weeks

Assessment

Multiple

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module runs in Term 1 and is only available to students with their home department in Statistics.

The student numbers on this module are strictly limited and pre-registration will be required.

Please see <https://go.warwick.ac.uk/ST344> for preregistration information and selection criteria.

[Module web page](#)

Module aims

The module will introduce students to statistical problem solving and the statistical investigative cycle from problem formulation to the communication of conclusions. Students will be trained in teamwork, leadership and communication/presentation skills.

Broadly speaking, the intention of this module is to complement the more specialized and/or technical modules that our students take, by emphasising the skills needed to translate technical knowhow into professional practice.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- The statistical investigative cycle
- Data collection and quality
- Exploratory analysis of data
- Data analysis and visualisations using R
- Oral presentations and academic writing skills
- Writing for a non-specialist audience
- Teamwork, leadership and (multinational) communication

Learning outcomes

By the end of the module, students should be able to:

- Understand the elements of a statistical investigative cycle
- Perform a statistical investigation for a simple problem
- Produce numerical and graphical output from R to support a statistical investigation
- Communicate the results of a statistical analysis in a written report and online
- Understand approaches to and issues in teamwork, leadership and communication
- Work effectively in a collaborative team

Indicative reading list

[View reading list on Talis Aspire](#)

Subject specific skills

TBC

Transferable skills

TBC

Study

Study time

Type	Required
Lectures	7 sessions of 1 hour (5%)
Total	143 hours

Type	Required
Project supervision	4 sessions of 30 minutes (1%)
Supervised practical classes	6 sessions of 2 hours (8%)
Online learning (independent)	16 sessions of 1 hour (11%)
Private study	6 hours (4%)
Assessment	100 hours (70%)
Total	143 hours

Private study description

Weekly recommended and wider reading, data analysis, group meetings and preparation for group activities.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A4

	Weighting	Study time	Eligible for self-certification
Professional Data Analysis Portfolio.	45%	50 hours	No

A portfolio of work carried out over the term that builds evidence of data analysis professional standards. This evidence includes the following elements.

1. Using R to professionally carry out data analysis tasks on data sets that are presented, interpreted, discussed, and evaluated.
2. A formal data set investigation that comprises an executive summary presenting a summary of the findings to an intelligent, but not statistically trained audience; a clear statement of objectives, that is, the research questions posed; a description and critical discussion of the analysis performed to answer the research questions; a presentation and critical discussion of the findings; a bibliography listing literature and other sources; a “technical appendix” in the form of either a single, annotated .Rmd file giving the details of your analysis or, if other files are needed to allow the analysis to be reproduced, a .zip archive with the .Rmd file and all other relevant files; a self-contained HTML page containing a collection of 3-4 visualisations of the data.

Weighting**Study time****Eligible for self-
certification**

3. Critical reflections that contextualise the learning claimed in evidence 1 and 2.

Due to the nature of the work undertaken and the difficulty in assigning a word count to equations, figures, tables, graphics, data output and computer code, the word count is an approximation and an individual word count may vary depending on the nature of the analysis undertaken.

Professional Group
Project Portfolio

55%

50 hours

No

A portfolio of work carried out as a team and individual that builds evidence of professional team work to complete a data analysis task. This evidence includes the following.

1. A plan setting out realistic timeline with appropriate work milestones, meeting dates and provisional allocation of tasks to group members.
2. A professional team report presenting the analysis and findings of the group from the data analysis task set. This document should be written for readers who do not necessarily have advanced statistical training but are considered professionals.
3. An approximate 10-minute professional team oral presentation detailing the analysis of main findings. The intended audience is considered statistically trained.
4. An individual piece of reflective writing on teamwork experiences. This personal account describes, critically discusses, and reflect on individual learning experience.

Due to the nature of the work undertaken and the difficulty in assigning a word count to equations, figures, tables, graphics, data output and computer code, the word count is an approximation and an individual word count may vary depending on the nature of the analysis undertaken.

Assessment group R3

	Weighting	Study time	Eligible for self-certification
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Reassessment as an individual project	100%		No
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This is an individual project replacing any parts of the module that need to be reassessed.

Feedback on assessment

Grades and feedback will be returned online within 20 working days of the submission deadline. Laboratory reports and the group project plan will normally be given feedback within 20 working days.

Availability

Courses

This module is Core for:

- Year 3 of USTA-G304 Undergraduate Data Science (MSci)

This module is Optional for:

- USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
 - Year 3 of G300 Mathematics, Operational Research, Statistics and Economics
 - Year 4 of G300 Mathematics, Operational Research, Statistics and Economics

This module is Option list A for:

- Year 4 of USTA-G1G4 Undergraduate Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)
- Year 3 of USTA-GG14 Undergraduate Mathematics and Statistics (BSc)
- Year 4 of USTA-GG17 Undergraduate Mathematics and Statistics (with Intercalated Year)
- Year 3 of USTA-Y602 Undergraduate Mathematics, Operational Research, Statistics and Economics

This module is Option list B for:

- Year 3 of USTA-G302 Undergraduate Data Science
- Year 4 of USTA-G303 Undergraduate Data Science (with Intercalated Year)
- Year 3 of USTA-G301 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics (with Intercalated
- Year 3 of USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)

This module is Option list G for:

- Year 3 of USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics