

ST344-15 Professional Practice of Data Analysis

20/21

Department

Statistics

Level

Undergraduate Level 3

Module leader

Richard Everitt

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 to 50 and pre-registration will be required.

Please see <http://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	5 sessions of 2 hours (4%)
Total	262 hours

Type	Required
Project supervision	4 sessions of 30 minutes (1%)
Supervised practical classes	6 sessions of 1 hour (2%)
Online learning (independent)	16 sessions of 1 hour (6%)
Private study	116 hours (44%)
Assessment	112 hours (43%)
Total	262 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 A1

	Weighting	Study time	Eligible for self-certification
Reflective writing on teamwork experience	10%	5 hours	Yes (extension)

Due in Term 2 Week 3.

A piece of reflective writing on your team work experience during the module. Describe, critically discuss and reflect on what you have learned from the experience. This should be a personal account that describes and reflects on how you felt. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Reflective piece should not exceed 2 pages in length.

Laboratory Report 1	2%	4 hours	Yes (extension)
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Due in Term 1 Week 2.

You will use R to carry out a series of tasks on provided data sets and you will present, discuss and evaluate the results. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Laboratory Report 1 should not exceed 1 page in length.

Laboratory Report 2	2%	4 hours	Yes (extension)
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Due in Term 1 Week 3.

You will use R to carry out a series of tasks on provided data sets and you will present, discuss

	Weighting	Study time	Eligible for self-certification
and evaluate the results. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Laboratory Report 2 should not exceed 1 page in length.			
Laboratory Report 3 Due in Term 1 Week 4. You will use R to carry out a series of tasks on provided data sets and you will present, discuss and evaluate the results. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Laboratory Report 3 should not exceed 1 page in length.	2%	4 hours	Yes (extension)
Laboratory Report 4 Due in Term 1 Week 5. You will use R to carry out a series of tasks on provided data sets and you will present, discuss and evaluate the results. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Laboratory Report 4 should not exceed 1 page in length.	2%	4 hours	Yes (extension)
Laboratory Report 5 Due in Term 1 Week 6. You will use R to carry out a series of tasks on provided data sets and you will present, discuss and evaluate the results. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Laboratory Report 5 should not exceed 1 page in length.	2%	4 hours	Yes (extension)
Group Project Plan Due in Term 1 Week 5. Plan for group project setting out realistic timeline with appropriate work milestones and meeting dates and provisional allocation of tasks to group members. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Group Project Plan should not exceed 1 page in length.	5%	4 hours	No
Group Project Report Due in Term 1 Week 9 A formal report, to professional standards, presenting the analysis and findings of the group from the data analysis task set. This document should be written for intelligent readers who do not necessarily have advanced statistical training. 500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Group Project Report should not exceed 8 pages in length.	35%	30 hours	No
Online Portfolio Due in Term 2 Week 9. 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.	30%	50 hours	No

	Weighting	Study time	Eligible for self-certification
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.			
500 words is equivalent to one page of text, diagrams, formula or equations; your ST344 Online Portfolio should not exceed 6 pages in length.			
Group Oral Presentation	10%	3 hours	No
Due in Term 1 Week 10			
A 12 minute professional oral presentation of the analysis and main findings, for an audience of fellow statisticians.			

Assessment group R

	Weighting	Study time	Eligible for self-certification
Reassessment as an individual project	100%		No
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 5 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 3 of USTA-G302 Undergraduate Data Science

- Year 4 of USTA-G303 Undergraduate Data Science (with Intercalated Year)
- Year 3 of USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
- 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-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
- Year 3 of USTA-G301 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics (with Intercalated