School of Information and Physical Sciences

STAT6170: The Science of Data Interrogation
Online
Semester 1 - 2024

OVERVIEW

Course Description
While data exploration is important, scientific interrogation and evidence-based decision-making is critical. This course extends visual explorations through formal analytical testing and modeling with an emphasis on applications in practice.

Academic Progress Requirements
Nil

Contact Hours
Online
Self-Directed Learning
Online
10 hour(s) per week(s) for 13 week(s) starting Week 1
There are opportunities for students to get individualised help from teaching staff in the course. Suggest 8-12 hours time commitment per week (guide only).

Unit Weighting
10

Workload
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator	**Online** Dr Glen Livingston Jr Glen.Livingstonjr@newcastle.edu.au (02) 4921 6128 Consultation: please email for consultation time
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	**School of Information and Physical Sciences** SR233, Social Sciences Building Callaghan CESE-SIPS-Admin@newcastle.edu.au +61 2 4921 5513 9am-5pm (Mon-Fri)

SYLLABUS

Course Content	The course will include the following topics: • Inference • Types of errors • Statistical tests • ANOVA • Multiple Regression • Reporting • Power and Sample Size
Course Learning Outcomes	**On successful completion of this course, students will be able to:** 1. Understand the role of statistics in developing valid and reliable scientific knowledge 2. Identify and implement appropriate statistical methods to support decision making 3. Employ statistical software to analyse data 4. Draw conclusions and effectively communicate and report upon analytical outcomes
Course Materials	**Multi-Media Resource:** - All materials will be available on Canvas.

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Online Quiz	Quiz 1 (5%) due Sunday 17 March, 23:59 AEST Quiz 2 (7%) due Sunday 14 Apr, 23:59 AEST Quiz 3 (8%) due Sunday 26 May, 23:59 AEST	Individual	20%	1, 2, 3, 4
2	Written Assignment	Assignment 1 (25%) due Monday 29 April 23:59 AEST Assignment 2 (25%) due Sunday 2 June 23:59 AEST	Individual	50%	1, 2, 3, 4
3	Formal Examination		Individual	30%	1, 2, 3, 4

Late Submissions   The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Quiz and Assignment solutions will be made available seven days following the due date. Therefore quiz and assignment submissions will not be accepted under any circumstances once the solutions are released. If you require an extension longer than seven days due to adverse circumstances, you may use the Adverse Circumstance portal to make a claim and another assessment item may be provided.

Assessment 1 - Online Quiz

Assessment Type   Quiz

Description   Each online quiz consists of 10 multiple choice or matching style questions. Students are allowed up to 60 minutes to complete the quiz. The 3 quizzes are designed to test knowledge of the course materials and help students maintain engagement with the course.

The online nature of the quizzes facilitates timely feedback on student learning; this, coupled with the regularity of testing, enables students to self-assess their methods of studying and learning the course materials, and adjust practices as necessary in preparation for future quizzes and assessments

Weighting   20%

Due Date   Quiz 1 (5%) due Sunday 17 March, 23:59 AEST
Quiz 2 (7%) due Sunday 14 Apr, 23:59 AEST
Quiz 3 (8%) due Sunday 26 May, 23:59 AEST

Submission Method   Online

Assessment Criteria   Criteria will be provided via Canvas

Return Method   Online

Feedback Provided   Online - .

Opportunity to Reattempt   Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 2 - Written Assignment

Assessment Type	Written Assignment
Description	The assignments are designed to enable students to apply skills, developed in the tutorials and labs based on content in the modules, which will be used throughout their program and careers. Students will apply what they have learned to demonstrate knowledge of various statistical concepts, including R software to complement analysis.
Weighting	50%
Due Date	Assignment 1 (25%) due Monday 29 April 23:59 AEST Assignment 2 (25%) due Sunday 2 June 23:59 AEST
Submission Method	Online
Assessment Criteria	Criteria will be provided via Canvas
Return Method	Online
Feedback Provided	Online - .
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 3 - Formal Examination

Assessment Type	Formal Examination
Description	The formal exam will involve producing R output and interpreting it for various data sets and scenarios.
Weighting	30%
Due Date	
Submission Method	Online
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	No Feedback - .
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods	Communication methods used in this course include:
Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.
Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.
Adverse Circumstances	The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where: 1. the assessment item is a major assessment item; or 2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system; 3. you are requesting a change of placement; or 4. the course has a compulsory attendance requirement. Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236
Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures that support a safe and respectful environment at the University.