UNSW Course Outline

MATH2871 Data Management for Statistical Analysis - 2024

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General Course Information

Course Code : MATH2871
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Mathematics & Statistics
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook [Class Timetable](Class%20Timetable)

Course Details & Outcomes

Course Description

This is an introductory level course in programming using the SAS (Statistical Analysis System) for second year students from the disciplines of Data Science, Statistics, and Commerce. The course has both lectures and a laboratory. The course covers the use of spreadsheet tool to

organise and query statistical data, programming in an advanced statistical package for file management, data manipulation and cleaning; methods for data screening, cleaning, graphical displays and data analysis using a range of statistical procedures; creation of data analysis reports using modern statistical and graphical methods. The course is based around the SAS statistical analysis system and programming tools. Knowledge and skills developed will be generic and applicable to a range of modern statistical software tools.

Course Aims

The course, which is a collaborative venture of the School of Mathematics and Statistics and SAS, aims to provide a practical introduction to the management and analysis of data. Large data sets are found widely in business, finance, bioinformatics, government, intelligence, etc . Skills in querying, cleaning, managing, displaying and analysing data, which are widely sought, will be developed in this course.

The course will provide students with the opportunity to take the SAS certification in Base Programming. There is a fee to sit this SAS exam and will be stated later. SAS runs this certification via Pearson Vue online. After the course, SAS operates a work experience placement program. Please consult SAS webpage for further information.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Demonstrate knowledge of fundamental programming skills with SAS (Statistical Analysis System) by applying them to solve practical problems.
CLO2 : Integrate datasets into SAS.
CLO3 : Demonstrate knowledge of manipulating, validating, cleaning, transforming, and restructuring data sets by producing summary reports.
CLO4 : Apply high level tools such as DO loops and arrays to write efficient programs.
CLO5 : Demonstrate introductory knowledge of Graphics: Bar charts, pie charts, scatterplots.

Course Learning Outcomes	Assessment Item
CLO1 : Demonstrate knowledge of fundamental programming skills with SAS (Statistical Analysis System) by applying them to solve practical problems.	• Quiz • Final Exam • Assignment
CLO2 : Integrate datasets into SAS.	• Quiz • Final Exam • Assignment
CLO3 : Demonstrate knowledge of manipulating, validating, cleaning, transforming, and restructuring data sets by producing summary reports.	• Quiz • Final Exam • Assignment
CLO4 : Apply high level tools such as DO loops and arrays to write efficient programs.	• Quiz • Final Exam • Assignment
CLO5 : Demonstrate introductory knowledge of Graphics: Bar charts, pie charts, scatterplots.	• Assignment

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz Assessment Format: Individual	20%	Start Date: please refer to the Additional Information Due Date: please refer to the Additional Information
Final Exam Assessment Format: Individual	60%	
Assignment Assessment Format: Group	20%	Start Date: 29/03/2024 07:00 PM Due Date: 12/04/2024 07:00 PM

Assessment Details
Quiz

Assessment Overview

You will complete 4 equally weighted quizzes across the term (weeks 3, 5, 7 and 9). The online multiple choice quizzes will give you an opportunity to test your understanding of basic SAS knowledge. It will help you to prepare for the SAS BASE Programming Certification, which can be attempted after the course. Each online quiz consists of 10-15 questions; You will have 25 minutes to complete the quiz and will be available on Moodle for 24 hours.

Feedback will be provided within in the form of a grade, 1 week of completing each quiz.

Course Learning Outcomes

- CLO1 : Demonstrate knowledge of fundamental programming skills with SAS (Statistical Analysis System) by applying them to solve practical problems.
- CLO2 : Integrate datasets into SAS.
- CLO3 : Demonstrate knowledge of manipulating, validating, cleaning, transforming, and restructuring data sets by producing summary reports.
- CLO4 : Apply high level tools such as DO loops and arrays to write efficient programs.

Assessment information

Standard late submission penalties apply.

Quiz 1 starts on February 28th and ends on March 1st

Quiz 2 starts on March 13th and ends on March 15th

Quiz 3 starts on March 27th and ends on March 29th

Quiz 4 starts on April 10th and ends on April 12th

Final Exam

Assessment Overview

The final exam is designed to assess your learning and problem-solving skills on all topics delivered across all weeks of the term, including material from lectures, tutorials and laboratory classes. The exam is typically 2 hours long and consists of short answers and longer responses that can be used to write code. The examination will occur during the official university examination period. Feedback is available through inquiry with the course convenor.

Course Learning Outcomes

- CLO1 : Demonstrate knowledge of fundamental programming skills with SAS (Statistical Analysis System) by applying them to solve practical problems.
- CLO2 : Integrate datasets into SAS.
- CLO3 : Demonstrate knowledge of manipulating, validating, cleaning, transforming, and restructuring data sets by producing summary reports.
- CLO4 : Apply high level tools such as DO loops and arrays to write efficient programs.

Assignment

Assessment Overview

The assignment will give you an opportunity to attempt more difficult problems requiring more than one line of argument and also introduce aspects of the subject that are explicitly covered in the lectures and tutorials.

You will work in a group of up to 5 students with the group submitting one copy of the assignment through Turnitin in Moodle.

This task is due in Week 9 with written feedback provided within one week.

Course Learning Outcomes

- CLO1 : Demonstrate knowledge of fundamental programming skills with SAS (Statistical Analysis System) by applying them to solve practical problems.
- CLO2 : Integrate datasets into SAS.
- CLO3 : Demonstrate knowledge of manipulating, validating, cleaning, transforming, and restructuring data sets by producing summary reports.
- CLO4 : Apply high level tools such as DO loops and arrays to write efficient programs.
- CLO5 : Demonstrate introductory knowledge of Graphics: Bar charts, pie charts, scatterplots.

Standard late submission penalties apply

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Topic	Introduction: Programming basics, SAS windows environment, files of SAS, SAS data libraries
Week 2 : 19 February - 25 February	Topic	SAS programs: Components, running programs, diagnosing errors
Week 3 : 26 February - 3 March	Topic	Producing List Reports: PRINT procedure, sequencing and group observations, identifying observations
Week 4 : 4 March - 10 March	Topic	Creating and Reading SAS datasets: Read raw data file, error awareness, variable attributes, concatenating and merging dataset
Week 5 : 11 March - 17 March	Topic	Producing Summary Reports: Basic reports, accumulating totals
Week 7 : 25 March - 31 March	Topic	Controlling Input and Outputs: Displaying multiple observations, writing to multiple datasets, variable selection
Week 8 : 1 April - 7 April	Topic	Data Transformation: Manipulating character and numeric values
Week 9 : 8 April - 14 April	Topic	Iterative Processing: DO loops, arrays
Week 10 : 15 April - 21 April	Topic	Combining Datasets and Introduction to Graphics

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Leung Chan					No	Yes

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.
Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.
Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- [The Current Students Gateway](#)
- [Student Support](#)
- [Academic Skills and Support](#)
- [Student Wellbeing, Health and Safety](#)
- [Equitable Learning Services](#)
- [UNSW IT Service Centre](#)
- Science EDI Student [Initiatives](#), [Offerings](#) and [Guidelines](#)

School-specific Information

School of Mathematics and Statistics and UNSW Policies

The School of Mathematics and Statistics has adopted a number of policies relating to enrolment, attendance, assessment, plagiarism, cheating, special consideration etc. These are in addition to the Policies of The University of New South Wales. Individual courses may also adopt other policies in addition to or replacing some of the School ones. These will be clearly notified in the Course Initial Handout and on the Course Home Pages on the Maths Stats web site. Students in courses run by the School of Mathematics and Statistics should be aware of the School and Course policies by reading the appropriate pages on the web site starting at: [The School of Mathematics and Statistics assessment policies](#)

The School of Mathematics and Statistics will assume that all its students have read and understood the School policies on the above pages and any individual course policies on the Course Initial Handout and Course Home Page. Lack of knowledge about a policy will not be an excuse for failing to follow the procedure in it.

Special Consideration - Short Extension Policy

The School of Mathematics and Statistics has carefully reviewed its range of assignments and projects to determine their suitability for automatic short extensions as set out by the UNSW Short Extension Policy. Upon comprehensive examination of our course offerings that incorporate these types of assessments, we have concluded that our current deadline structures already accommodate the possibility of unexpected circumstances that may lead students to require additional days for submission. Consequently, the School of Mathematics and Statistics has decided to universally opt out of the Short Extension provision for all its courses, having pre-emptively integrated flexibility into our assessment deadlines. The decision is subject to revision in response to the introduction of new course offerings. Students may still apply for Special Consideration via the usual procedures.

Computing Lab

The main computing laboratory is room G012 of the Anita B.Lawrence Centre (formerly Red Centre). You can get to this lab by entering the building through the main entrance to the School of Mathematics (on the Mezzanine Level) and then going down the stairs to the Ground Level. A second smaller lab is Room M020, located on the mezzanine level through the glass door (and along the corridor) opposite the School's entrance.

For more information, including opening hours, see the computing facilities webpage. Remember that there will always be unscheduled periods when the computers are not working because of equipment problems and that this is not a valid excuse for not completing assessments on time.

School Contact Information

School Contact Information

Please visit the School of Mathematics and Statistics website for a range of information.

For information on Courses, please go to "Student life & resources" and either Undergraduate and/or Postgraduate and respective "Undergraduate courses" and "Postgraduate courses" for information on all course offerings.

All school policies, forms and help for students can be located by going to the "Student Services" within "Student life & resources" page. We also post notices in "Student noticeboard" for your information. Please familiarise yourself with the information found in these locations. If you cannot find the answer to your queries on the web you are welcome to contact the Student Services Office directly.

Undergraduate

E: ug.mathsstats@unsw.edu.au

P: 9385 7011 or 9385 7053

Postgraduate

E: pg.mathsstats@unsw.edu.au

P: 9385 7053

Should we need to contact you, we will use your official UNSW email address of in the first instance. **It is your responsibility to regularly check your university email account. Please use your UNSW student email and state your student number in all emails to us.**