UNSW Course Outline

INFS2608 Database Management & Big Data Infrastructures - 2024

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General Course Information

Course Code : INFS2608
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : UNSW Business School
Academic Unit : School of Information Systems and Technology Management
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

INFS2608 is a Level 2 Information Systems (IS) course that continues students' study of IS by covering various advanced topics pertinent to Big Data. Extending on the principles and theoricial fundamentals taught in INFS1603, students will learn to apply data design to Big Data systems. Through this course students will be taught the complexities of Big Data systems through

business case studies.

Students will learn to distinguish the elements that make up Big Data and appraise the journey of building Big Data from start to finish. It is crucial for students to be able to evaluate the design and architecture of Big Data technology. This will cover emerging technologies and trends in Database Design, Data Management and Big Data.

Students will also apply strategic thinking to enable effective data management. Situating oneself as a business person, students will practice how to navigate big data systems, make sense of the data and lastly generate insights to solve business problems.

Through collaboration, students will look at Big Data from the perspective of a data project manager and be capable of explaining technical details to a wide range of stakeholders, in order to activate the use of data within an organisation.

Course Aims

This course aims to deepen your understanding of various advanced topics pertinent to database management with Big Data, especially with the implementation of data warehousing, and how they are being applied in business data analytics. Furthermore, the course aims to develop your's knowledge in designing, managing, and evaluating Big Data infrastructure. You will practice self-directed work in groups that will help them develop their interpersonal communication, project management and quality assurance skills.

Relationship to Other Courses

The course requires successful completion of INFS1603, or COMM1822, or COMM2822.

Course Learning Outcomes

Course Learning Outcomes	Program learning outcomes
CLO1 : Investigate emerging technologies and trends in database design, data management and big data in a business context.	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO6 : Global and Cultural Competence
CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO7 : Leadership Development
CLO3 : Evaluate Big Data analytic strategies for decision making.	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO7 : Leadership Development
CLO4 : Collaborate to solve complex data related problems to generate a business proposition and presentation.	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO7 : Leadership Development

Course Learning Outcomes	Assessment Item
CLO1 : Investigate emerging technologies and trends in database design, data management and big data in a business context.	• Weekly Quiz • Reflection and In-class Activities • Final Exam
CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.	• Group Project • Weekly Quiz • Reflection and In-class Activities • Final Exam
CLO3 : Evaluate Big Data analytic strategies for decision making.	• Group Project • Weekly Quiz • Reflection and In-class Activities • Final Exam
CLO4 : Collaborate to solve complex data related problems to generate a business proposition and presentation.	• Group Project

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360

Learning and Teaching in this course

The course offers both lectures and tutorials to help students gain advanced knowledge of databases, including big data and data warehousing. Various activities throughout the course will encourage critical thinking and problem-solving skills and prepare students to work effectively with databases.

The lectures, tutorials, and materials, including textbooks, provide the structure, context, and resources for learning. However, students should take the initiative to self-learn the practical components throughout the course. Practical assistance is provided through hands-on exercises in the tutorials, and practical engagement with the material through self-study or peer groups is a crucial element of the learning process.

Additionally, students will learn how to implement fundamental database design principles in big data infrastructure while considering cultural environments.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Group Project Assessment Format: Group	25%	
Weekly Quiz Assessment Format: Individual	5%	Start Date: Weekly Due Date: Weekly
Reflection and In-class Activities Assessment Format: Individual	20%	
Final Exam Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: Not Applicable

Assessment Details

Group Project

Assessment Overview

a. Group report (15%),

b. Presentation (10%) of a business case study

Course Learning Outcomes

- CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.

- CLO3 : Evaluate Big Data analytic strategies for decision making.
- CLO4 : Collaborate to solve complex data related problems to generate a business proposition and presentation.

Detailed Assessment Description

An important experiential component of the course is the completion of a database system design and/or analytics project. This assignment provides an opportunity for students to work in teams on a database implementation project. This assignment helps you improve your critical thinking, problem-solving, communication, teamwork and leadership and professional skills

Submission notes

Please refer to Moodle for more information

Weekly Quiz

Assessment Overview

Weekly pre-lecture multiple choice quiz on Moodle.

Course Learning Outcomes

- CLO1 : Investigate emerging technologies and trends in database design, data management and big data in a business context.
- CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.
- CLO3 : Evaluate Big Data analytic strategies for decision making.

Detailed Assessment Description

Preparing weekly quizzes based on reading materials, including the textbook, before lectures offer several advantages for students. First, it promotes active engagement with the material, which enhances participation in discussions and ensures efficient learning during lectures. Second, it encourages critical thinking and boosts confidence. In summary, proactive preparation enriches the learning experience and contributes to a better learning experience.

Note that late submissions are not accepted, and there is no special consideration for this assessment component.

Reflection and In-class Activities

Assessment Overview

a. Participate in structured in class activites and then submit journal entry of 50-100 words to Moodle in weeks 2,4, 7, 9 and a final 200 word reflection in week 10

b. Weekly Lab Exercises

Course Learning Outcomes

- CLO1 : Investigate emerging technologies and trends in database design, data management and big data in a business context.
- CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.
- CLO3 : Evaluate Big Data analytic strategies for decision making.

Detailed Assessment Description

The lab sessions are divided into two parts:

1. You will gain knowledge on how to implement fundamental principles of database design in big data infrastructure, taking cultural environments into consideration. This is a crucial requirement that carries a weightage of 10% for PLO6. Completing this task will also earn myBcom course points for BCom students.
2. You will individually complete a set of lab exercises and/or quizzes, and 10% of your overall grade will be allocated to them. The lab sessions are designed to help you complete your database system design and/or analytics project.

Your tutor will provide instructions on what you need to do each week.

Your lab instructor will be responsible for all laboratory sections and will also guide you through your database project. If you encounter any problems with the laboratory or database project, do not hesitate to contact your lab instructor for assistance.

Submission notes

Please refer to Moodle for more information

Final Exam

Assessment Overview

Invigilated summative exam to assess knowledge and skills developed over the duration of the course.

Course Learning Outcomes

- CLO1 : Investigate emerging technologies and trends in database design, data management and big data in a business context.
- CLO2 : Apply the basic principles of database design to Big Data infrastructure with considerations of cultural environments.
- CLO3 : Evaluate Big Data analytic strategies for decision making.

Detailed Assessment Description

A final Invigilated exam will be run during the exam period. It is a summative exam that assesses

knowledge and skills developed over the duration of the course. The aim of the final examination is to enable students to demonstrate to the examiner that they have achieved all learning outcomes of the course, have achieved a level of competency with advanced database topics, and have the capacity to apply the competency critically and analytically in an organisational environment.

Submission notes

Please see examination timetable

General Assessment Information

As a student at UNSW you are expected to display academic integrity in your work and interactions. Where a student breaches the UNSW Student Code with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the Working with Academic Integrity module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

You are expected to complete all assessment tasks for your courses in the School of Information Systems and Technology Management. Classes are highly practical and relevant to your assessments, so you are expected to attend at least 80% of all scheduled classes.

Where group assignments are used, team members are expected to work in a harmonious and professional fashion, which includes adequate management of non-performing members. You should inform your tutor as soon as possible if you experience problems within a project team. You may be required to evaluate the contribution of each team member (including yourself) in group work and marks for individual students may be adjusted based on peer assessment.

Grading Basis

Standard

Requirements to pass course

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of 100;
- meet any additional requirements described in the Assessment Summary section.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Database Life Cycle (DBLC)
	Tut-Lab	Revision (Entity Relationship Modelling)
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz (Discuss in Week 1 Lecture) Assessment 3 Lab Class Work
Week 2 : 3 June - 9 June	Lecture	Data Warehouse
	Laboratory	Data Warehouse I
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work and Cultural Journal
Week 3 : 10 June - 16 June	Lecture	King's Birthday - No Lecture (Culture [Recording])
	Tut-Lab	No Class (Data Warehouse II)
	Assessment	Assessment 3 Lab Class Work
Week 4 : 17 June - 23 June	Lecture	Business Intelligence and Transaction Management
	Tut-Lab	Data Warehouse III
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work and Cultural Journal
Week 5 : 24 June - 30 June	Lecture	Database Performance and Connectivity
	Tut-Lab	PowerBI
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work
Week 6 : 1 July - 7 July	Topic	Flexibility Week
Week 7 : 8 July - 14 July	Lecture	Big Data (The Vs)
	Tut-Lab	PowerBI
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work and Cultural Journal
Week 8 : 15 July - 21 July	Lecture	MapReduce and NoSQL
	Tut-Lab	Cloud Data Warehouse
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work
Week 9 : 22 July - 28 July	Lecture	Database Administration and Security
	Tut-Lab	Data Security
	Assessment	Assessment 2 Weekly Pre-Lecture Quiz Assessment 3 Lab Class Work and Cultural Journal
Week 10 : 29 July - 4 August	Lecture	Procedural Language and Course Review
	Tut-Lab	Assessment 1 Presentation
	Assessment	Assessment 3 Cultural Reflection

Attendance Requirements

Your regular attendance and active engagement in all scheduled classes and online learning activities are expected in this course. Failure to attend/engage in assessment tasks integrated into learning activities (e.g., class discussion, presentations) will be reflected in the marks for these assessable activities. The Business School may refuse final assessment to those students who attend less than 80% of scheduled classes where attendance and participation are required as part of the learning process (e.g., tutorials, flipped classroom sessions, seminars, labs, etc.).

View more information on attendance

Course Resources

Prescribed Resources

The textbook for this course is:

- Coronel, C., Morris, S. (2023) Database Systems: Design, Implementation & Management [14e]. Cengage Learning, Independence, KY, USA. (ISBN-13: ISBN-13: 9780357673034) (for the lectures)

Note: The textbook's hardcopy and eBook versions are available from the UNSW Bookshop (see https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9780357673034).

Coronel and Morris (2023) support the lecture; The latest edition is recommended. Additional course materials may be provided in class and on the course website on UNSW Moodle.

Course Evaluation and Development

Feedback is regularly sought from students, and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey, which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us in meeting the needs of our students and providing an effective and enriching learning experience. The results of all surveys are carefully considered and lead to action towards enhancing educational quality.

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In this course, we will seek your feedback through end-of-term myExperience responses. Feedback will also be encouraged throughout the term via collaborative platforms and in-class discussions. This feedback will be considered and applied where appropriate. For example, the self-and-peer learning assessment component was introduced as a result of feedback highlighting the individual nature of assessment tasks.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Vincent Pang		Quad 2088	0293857835	Consultation: Monday, 11am - 12pm	Yes	Yes
Head tutor	Eric Chiu					No	No
Tutor	Jessica Qiao					No	No
	Tony Wu					No	No
	Corey Won					No	No
	Khang Bui					No	No
	Kevin Cao					No	No

Other Useful Information

Academic Information

COURSE POLICIES AND SUPPORT

The Business School expects that you are familiar with the contents of this course outline and the UNSW and Business School learning expectations, rules, policies and support services as listed below:

- Program Learning Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Protocol for Viewing Final Exam Scripts
- Student Learning Support Services

Further information is provided on the key policies and support page.

Students may not circulate or post online any course materials such as handouts, exams, syllabi or similar resources from their courses without the written permission of their instructor.

STUDENT LEARNING OUTCOMES

The Course Learning Outcomes (CLOs) – under the Outcomes tab – are what you should be able to demonstrate by the end of this course, if you participate fully in learning activities and successfully complete the assessment items.

CLOs also contribute to your achievement of the Program Learning Outcomes (PLOs), which are developed across the duration of a program. PLOs are, in turn, directly linked to UNSW graduate capabilities. More information on Coursework PLOs is available on the key policies and support page. For PG Research PLOs, including MPDBS, please refer to the UNSW HDR Learning Outcomes.

Academic Honesty and Plagarism

As a student at UNSW you are expected to display academic integrity in your work and interactions. Where a student breaches the UNSW Student Code with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the Working with Academic Integrity module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Submission of Assessment Tasks

SPECIAL CONSIDERATION

You can apply for special consideration when illness or other circumstances beyond your control interfere with your performance in a specific assessment task or tasks, including online exams. Students studying remotely who have exams scheduled between 10pm and 7am local time, are also able to apply for special consideration to sit a supplementary exam at a time outside of these hours.

Special consideration is primarily intended to provide you with an extra opportunity to demonstrate the level of performance of which you are capable. To apply, and for further information, see Special Consideration on the UNSW Current Students page.

Special consideration applications will be assessed centrally by the Case Review Team, who will update the online application with the outcome and add any relevant comments. The change to the status of the application immediately sends an email to the student and to the assessor with the outcome of the application.

Please note the following:

1. Applications can only be made through Online Services in myUNSW (see the UNSW Current Students page). Applications will not be accepted by teaching staff. The lecturer-in-charge/ course coordinator will be automatically notified when your application is processed.
2. Applying for special consideration does not automatically mean that you will be granted a supplementary exam or other concession.
3. If you experience illness or misadventure in the lead up to an exam or assessment, you must submit an application for special consideration, either prior to the examination taking place, or prior to the assessment submission deadline, except where illness or misadventure prevent you from doing so.
4. If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment or the period covered by your supporting documentation.
5. Under the UNSW Fit To Sit/Submit rule, if you sit the exam/submit an assignment, you are declaring yourself well enough to do so and are cannot subsequently apply for special consideration.
6. If you become unwell on the day of – or during – an exam, you must stop working on your exam, advise your course coordinator or tutor and provide a medical certificate dated within 24 hours of the exam, with your special consideration application. For online exams, you must contact your course coordinator or tutor immediately via email, Moodle or chat and advise them you are unwell and submit screenshots of your conversation along with your medical certificate and application.
7. Special consideration requests do not allow the awarding of additional marks to students.

Further information on Business School policy and procedure can be found under “Special Consideration” on the key policies and support page.

LATE SUBMISSION PENALTIES

For assessments other than examinations, late submission will incur a penalty of 5% per day or part thereof (including weekends) from the due date and time. An assessment will not be accepted after 5 days (120 hours) of the original deadline unless special consideration has been approved. An assignment is considered late if the requested format, such as hard copy or electronic copy, has not been submitted on time or where the ‘wrong’ assignment has been submitted.

For assessments which account for 10% or less of the overall course grade, and where answers are immediately discussed or debriefed, the LIC may stipulate a different penalty. Details of such late penalties will be available on the course Moodle page.

FEEDBACK ON YOUR ASSESSMENT TASK PERFORMANCE

Feedback on student performance from formative and summative assessment tasks will be provided to students in a timely manner. Assessment tasks completed within the teaching period of a course, other than a final assessment, will be assessed and students provided with feedback, with or without a provisional result, within 10 working days of submission, under normal circumstances. Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Faculty-specific Information

PROTOCOL FOR VIEWING FINAL EXAM SCRIPTS

UNSW students have the right to view their final exam scripts, subject to a small number of very specific exemptions. The UNSW Business School has set a protocol under which students may view their final exam script. Individual schools within the Faculty may also set up additional local processes for viewing final exam scripts, so it is important that you check with your School.

If you are completing courses from the following schools, please note the additional school-specific information:

- Students in the **School of Accounting, Auditing & Taxation** who wish to view their final examination script should also refer to this page.
- Students in the **School of Banking & Finance** should also refer to this page.
- Students in the **School of Information Systems & Technology Management** should also refer to this page.

COURSE EVALUATION AND DEVELOPMENT

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey, which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

QUALITY ASSURANCE

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used

for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

TEACHING TIMES AND LOCATIONS

Please note that teaching times and locations are subject to change. Students are strongly advised to refer to the Class Timetable website for the most up-to-date teaching times and locations.