COMP8230

Mining Unstructured Data

Session 1, In person-scheduled-weekday, North Ryde 2023

School of Computing

Contents

General Information

Unit convenor and teaching staff
Lecturer and Unit Convener
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Credit points
10

Prerequisites
COMP6200 or ITEC657

Corequisites

Co-badged status

Unit description
Unstructured data, like text data, graph data, audios, and videos widely exist in our daily life. Efficiently and effectively mining the unstructured data are significant and acting as the backbone in many real applications, like machine translation, face recognition, and link prediction. This unit will introduce key concepts in unstructured data mining, including specific algorithms and techniques for unstructured data cleaning, pattern mining, knowledge discovery, and the prediction of unstructured data. By taking this unit you will be given a broad view of the general issues surrounding unstructured data and the application of methodologies and algorithms to such a type of data. You will have the chance to explore an assortment of unstructured data mining techniques, which you will apply to solve problems involved in real scenarios.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Demonstrate an understanding of basic concepts, techniques, algorithms and modellings in unstructured data mining.

ULO3: Explain how good decision making is supported by descriptive and predictive data mining

ULO2: Identify the appropriate data mining techniques and algorithms for real life unstructured data mining problems.

ULO4: Present and analyse the unstructured data mining results with advanced data mining techniques.

ULO5: Communicate clearly and effectively

General Assessment Information

Requirements to Pass this Unit

To pass this unit you must:

- Achieve a total mark equal to or greater than 50%.

Late submission

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is 11:55 pm. A 1-hour grace period will be provided to students who experience a technical concern. The late submission rule was changed to align with the new Faculty policy.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for Special Consideration.

Assessments where Late Submissions will be accepted

- Assessment 1 – YES, Standard Late Penalty applies
- Assessment 2 – YES, Standard Late Penalty applies
- Assessment 3 – YES, Standard Late Penalty applies

Special Consideration

The Special Consideration Policy aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable, and significantly disruptive, and

which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through ask.mq.edu.au.

Details for each assignment will be available via iLearn

You are encouraged to:

- Set your personal deadline earlier than the actual one
- Keep backups of all your important files
- Ensure that no-one else picks up your printouts

Assessment Tasks

Name	Weighting	Hurdle	Due
Weekly Submission	10%	No	One week after each lecture
Problem Analysis	30%	No	Week 5
Report on Data Mining in Industry	30%	No	Week 9
Literature Review	30%	No	Week 12

Weekly Submission

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 6 hours
Due: **One week after each lecture**
Weighting: **10%**

Students will be marked based on their answers on weekly submissions.

On successful completion you will be able to:

- Demonstrate an understanding of basic concepts, techniques, algorithms and modellings in unstructured data mining.
- Explain how good decision making is supported by descriptive and predictive data mining
- Identify the appropriate data mining techniques and algorithms for real life unstructured data mining problems.
- Present and analyse the unstructured data mining results with advanced data mining techniques.

Problem Analysis

Assessment Type [1]: Case study/analysis
Indicative Time on Task [2]: 18 hours
Due: **Week 5**
Weighting: **30%**

Students will be given a sample problem and will discuss the relevant data mining techniques and develop a plan to explore the problem.

On successful completion you will be able to:

- Demonstrate an understanding of basic concepts, techniques, algorithms and modellings in unstructured data mining.
- Explain how good decision making is supported by descriptive and predictive data mining
- Communicate clearly and effectively

Report on Data Mining in Industry

Assessment Type [1]: Report
Indicative Time on Task [2]: 18 hours
Due: **Week 9**
Weighting: **30%**

Students will write a report on an aspect of the application of unstructured data mining in an industry context.

On successful completion you will be able to:

- Demonstrate an understanding of basic concepts, techniques, algorithms and modellings in unstructured data mining.
- Present and analyse the unstructured data mining results with advanced data mining techniques.

Literature Review

Assessment Type [1]: Literature review
Indicative Time on Task [2]: 18 hours
Due: **Week 12**

Weighting: **30%**

Review of work relevant to one of the topics presented in the unit.

On successful completion you will be able to:

- Demonstrate an understanding of basic concepts, techniques, algorithms and modellings in unstructured data mining.
- Identify the appropriate data mining techniques and algorithms for real life unstructured data mining problems.
- Communicate clearly and effectively

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Classes

Each week has two hours of lectures. For details of days, times and rooms consult the timetables webpage. There is no workshop/practical class for this unit.

Required and Recommended Texts

All required and recommended readings will be provided as part of the lecture material.

Unit Web Page

The unit web page will be hosted in iLearn, where you will need to log in using your Student One ID and password. The unit will make extensive use of discussion boards also hosted in iLearn. Please post questions there, they will be monitored by the staff on the unit.

Methods of Communication

We will communicate with you via your university email or through announcements on iLearn. Queries to convenors can either be placed on the iLearn discussion board or sent to the unit convenor from your university email address.

COVID Information

For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: https://www.mq.edu.au/about/coronavirus-faqs. Remember to check this page regularly in case the information and requirements change during the semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

Unit Schedule

Week 1: Context-Aware Trust Relation Mining in Social Networks

Week 2: Context-Aware Path Mining in Networking Data

Week 3: Graph Pattern Matching in Networking Data

Week 4: Advanced Topic of Data Mining in Networking Data

Week 5: Data-Driven Knowledge-Intensive Data Mining in IoT

Week 6: Personal Health Data Mining in IoT

Week 7: Localization and Tracking in IoT

Week 8: Federated Learning for IoT

Week 9: Making Sense out of Unstructured Data

Week 10: Querying and Validating RDF Graphs

Week 11: Knowledge Bases and Ontologies

Week 12: Rule Languages

Week 13: Revisions (Q&A)

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.