COMP700

Research Frontiers in Computing 1

S2 Day 2015

Dept of Computing

Contents

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General Information

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Credit points
4

Prerequisites
Admission to MRes

Corequisites

Co-badged status

Unit description
This unit is designed to engage students with current research in computing. It will introduce students to a number of the current open research questions across the range of the broad discipline. It is the first of a pair of such units, with the second appearing in the second year of the MRes program. This unit addresses research across the breadth of the discipline, while the second unit will focus on more particular issues related to the student's project area. Activities may include such things as seminar attendance, directed reading of research papers, the discussion and critiquing of research topics and introduction to new practical techniques with preparatory reading, hands-on experience and a final report. Presentation of a seminar and a written report based on the topics examined are required for completion of this unit.

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:

Compare the research being done in the Department of Computing

Summarize the state of art in selected disciplines of Computing

Interpret and apply the principles of ethical conduct in selected disciplines of Computing

Write a critical overview of a research topic

Present a research topic orally

Assessment Tasks

Name	Weighting	Due
Final Report 1	25%	29th September, 2015
Presentation 1	15%	29th September, 2015
Final Report 2	25%	3rd November, 2015
Presentation 2	15%	3rd November, 2015
Class Participation	20%	week after each seminar

Final Report 1

Due: **29th September, 2015**
Weighting: **25%**

For a chosen topic, a student is required to write a report of approximately 1500 words and submit it.

On successful completion you will be able to:

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Write a critical overview of a research topic

Presentation 1

Due: **29th September, 2015**
Weighting: **15%**

The presentation of the first report. The presentation should be around 15-20 mins. The evaluation of it may cover the following aspects: structure of the presentation, quality of slides,

oral skills, interaction with audience and answering the audience questions.

On successful completion you will be able to:

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Present a research topic orally

Final Report 2

Due: **3rd November, 2015**
Weighting: **25%**

For a chosen topic, a student is required to write a report of approximately 1500 words and submit it.

On successful completion you will be able to:

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Write a critical overview of a research topic

Presentation 2

Due: **3rd November, 2015**
Weighting: **15%**

The presentation of the second report. The presentation should be around 15-20 mins. The evaluation of it may cover the following aspects: structure of the presentation, quality of slides, oral skills, interaction with audience and answering the audience questions.

On successful completion you will be able to:

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Present a research topic orally

Class Participation

Due: **week after each seminar**
Weighting: **20%**

After each seminar and in the following week there is going to be a discussion session. The discussion will be facilitated by short presentations of students.

On successful completion you will be able to:

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Interpret and apply the principles of ethical conduct in selected disciplines of Computing

Delivery and Resources

CLASSES

- **Seminars** -- the unit basic component is a collection of five seminars. Each seminar is given by an academic with international research standing. The seminars are going to present both the state of art and recent developments in the five selected research areas of Computing. Seminars are clustered in two blocks: the first block (Weeks 2, 4 & 6) and the second block (Weeks 9 & 11).
- **Final Reports and Presentations** -- after each block students are going to chose an individual topic for their final reports. The first report has to cover a topic from Seminar 1, 2 or 3. The second final report has to cover a topic from either Seminar 4 or Seminar 5. The final reports are going to presented at two presentation workshops.
- **Discussion Sessions** -- a week after each seminar, there will be a discussion session, in which students will present a chosen topic from the seminar.
- **Coaching Sessions** -- the unit is going to include lectures on how to manage time, write scientific reports and how to present research results.

UNIT WEBPAGE AND TECHNOLOGY USED AND REQUIRED

- **iLearn** is going to be used as a main web server for the unit.

Unit Schedule

The following schedule is tentative. Please consult iLearn for any possible updates.

Week	Topic	Lecturer
Week 1	Introduction to the unit	Diego Molla-Aliod
Week 2	Seminar 1: Machine Learning and Text Data Mining	Diego Molla-Aliod
Week 3	Discussion	Diego Molla-Aliod
Week 4	Seminar 2: Human Information Processing in Virtual and Augmented Reality	Manolya Kavakli
Week 5	Discussion	Manolya Kavakli
Week 6	Seminar 3: Software Verification	Franck Cassez

Week 7	Discussion	Franck Cassez
Week 8	Presentations of first report	Steve Cassidy
Week 9	Seminar 4: Trust Management and its Applications	Wang Yan
Week 10	Discussion	Wang Yan
Week 11	Seminar 5: Cloud Data Centre Efficiency with Big Data Processing	Young Choon Lee
Week 12	Discussion	Young Choon Lee
Week 13	Presentations of Second Reports	Steve Cassidy

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, 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.

Late Submissions

No extensions will be granted. Students who have not submitted the task by the deadline will be awarded a zero mark for the task, except for cases in which an application for special consideration is made and approved.

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

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

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Write a critical overview of a research topic

Assessment tasks

- Final Report 1

- Presentation 1
- Final Report 2
- Presentation 2
- Class Participation

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing

Assessment tasks

- Final Report 1
- Presentation 1
- Final Report 2
- Presentation 2
- Class Participation

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Compare the research being done in the Department of Computing
- Summarize the state of art in selected disciplines of Computing
- Present a research topic orally

Assessment tasks

- Final Report 1
- Presentation 1
- Final Report 2

- Presentation 2
- Class Participation

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Write a critical overview of a research topic
- Present a research topic orally

Assessment tasks

- Final Report 1
- Presentation 1
- Final Report 2
- Presentation 2

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Write a critical overview of a research topic
- Present a research topic orally

Assessment tasks

- Final Report 1
- Presentation 1
- Final Report 2
- Presentation 2

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of

connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Interpret and apply the principles of ethical conduct in selected disciplines of Computing
- Write a critical overview of a research topic

Assessment tasks

- Final Report 1
- Presentation 1
- Final Report 2
- Presentation 2
- Class Participation

Changes from Previous Offering

The overall structure of the unit has no significant changes from previous offerings. The topics of some of the seminars have changed, to show another shapshot of the wide range of research topics conducted at the Department of Computing.

Assessment standards

COMP700 will be graded according to the following general descriptions of the letter grades as specified by Macquarie University.

• High Distinction (HD, 85-100): provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.

• Distinction (D, 75-84): provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.

• Credit (Cr, 65-74): provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline..

• Pass (P, 50-64): provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.

• Fail (F, 0-49): does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

The standards of achievement that will be used to assess each of the assessment tasks with respect to the letter grades are as follows.

Learning outcomes 1, 2 and 3:

P	Can formulate and convey most important points that could be expected on the topic.
Cr / D	Can formulate and convey clearly all important points that could be expected on the topic.
HD	As for Cr or D and can come up with novel insightful points on the topic.

Learning Outcomes 4 and 5.

P	Be able to write a paper or document, or give a presentation, that would be acceptable at a conference.
Cr / D	Be able to write a paper or document, or give a presentation, that would be well received at a conference.
HD	Be able to write a paper or document, or give a presentation, that would be well received at a major international conference.

These assessment standards will be used to give a numeric mark out of 100 to each assessment submission during marking. The mark will correspond to a letter grade for that task according to the University guidelines. The final raw mark for the unit will be calculated by combining the marks for all assessment tasks according to the percentage weightings shown in the assessment summary.

We will look at your overall performance on all assessments when determining your final grade. A total raw mark of at least 50% in each of the assessment tasks will be sufficient to pass the unit. Students who do not meet this cut-off will be examined on a case-by-case basis.

On occasion your raw mark for the unit may not be the same as the Standardised Numeric Grade (SNG) which you receive as the final result. Under University Senate guidelines, raw marks may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performances of their students should achieve similar results.