MONASH University
Information Technology

FIT4009
Advanced topics in intelligent systems

Unit Guide

Semester 2, 2011

Last updated: 22 Aug 2011

Table of Contents

FIT4009 Advanced topics in intelligent systems - Semester 2, 2011

Methods from Artificial Intelligence (AI) form the basis for many advanced information systems. These techniques address problems that are difficult to solve or not efficiently solvable with conventional techniques. Building on the undergraduate curriculum this unit introduces the student to advanced AI methods and their applications in information systems.

Mode of Delivery

Clayton (Day)

Contact Hours

2 hrs lectures/wk

Workload

For on-campus students, workload commitments are: (12 hours per week total)

- Lectures: 2 hours per week
- Reading, preparation, assignment work, revision: 10 hours per week

Unit Relationships

Prerequisites

Completion of the Bachelor of Computer Science or equivalent to the entry requirements for the Honours program. Students must also have enrolment approval from the Honours Coordinator.

Chief Examiner

Professor Ingrid Zukerman

Campus Lecturer

Clayton

Ingrid Zukerman

Contact hours: Wednesday 11am - 12pm (Weeks 1 to 6)

Gholamreza Haffari

Contact hours: Wednesday 10am - 11am (Weeks 7 to 12)

Academic Overview

Learning Objectives

At the completion of this unit students will have:

- achieved an overview of different technologies that form the basis of intelligent information systems;
- understood the capabilities of these methods;
- learned to recognise tasks that can be solved with these methods;
- the ability to judge the limitations of these methods.With successful completion of the unit the students;
- the ability to apply the standard techniques in the chosen sub-fields of intelligent information systems to the construction and design of such systems;
- the ability to critically evaluate the performance of these approaches;
- the ability to compare these techniques to alternative approaches;
- gained an appreciation of the practical relevance of intelligent information systems.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:

a. engage in an internationalised world
b. exhibit cross-cultural competence
c. demonstrate ethical values

critical and creative scholars who:

a. produce innovative solutions to problems
b. apply research skills to a range of challenges
c. communicate perceptively and effectively

Assessment Summary

Assignment and Examination, relative weight depending on topic composition. When no exam is given students will be expected to demonstrate their knowledge by solving practical problems and maybe required to give an oral report.

Assessment Task	Value	Due Date
Assignment 1 - Document Retrieval System	15%	Week 6
Assignment 2 - Applications of Probability	15%	Week 8
Assignment 3 - Language Modeling	15%	Week 10
Assignment 4 - Parsing	15%	Week 12
Examination 1	40%	To be advised

Teaching Approach

Problem-based learning

Students are encouraged to take responsibility for organising and directing their learning with support from their lecturers.

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Graded assignments with comments
- Interviews

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
http://www.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Unit introduction, Introduction to NLP and UM	
2	Introduction to probability, Document retrieval	Assignment 1 released Week 2
3	Document retrieval, Introduction to machine learning	
4	Recommender systems	
5	Further probability and Markov models, Applications	Assignment 2 released Week 5
6	Applications in NLP and UM	Assignment 1 due Week 6
7	Language Modeling	
8	Parsing I	Assignment 2 due Week 8; Assignment 3 released Week 8
9	Parsing II	
10	Machine Translation I	Assignment 3 due Week 10; Assignment 4 released Week 10
11	Machine Translation II	
12	Machine Translation III	Assignment 4 due Week 12
	SWOT VAC	No formal assessment is undertaken SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/ academic/education/assessment/ assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Assignment 1 - Document Retrieval System
  Description:
  This will be a programming assignment.

  Further details will be provided in the assignment handout.
  Weighting:
  15%
  Criteria for assessment:

  - ◆ How well solutions are explained.
  - ◆ Quality of code demonstrated where applicable.

  Further details will be provided in the assignment handout.
  Due date:
  Week 6

- **Assessment task 2**

  Title:
  Assignment 2 - Applications of Probability
  Description:
  This assignment will involve a set of written questions relating to the learning material.

  Further details will be provided in the assignment handout.
  Weighting:
  15%
  Criteria for assessment:
  Quality of answers to questions (demonstrates understanding of the learning material).

  Further details will be provided in the assignment handout.
  Due date:

Week 8

- **Assessment task 3**

  Title:
  Assignment 3 - Language Modeling
  Description:
  This will be a programming assignment.

  Further details will be provided in the assignment handout.
  Weighting:
  15%
  Criteria for assessment:

  ♦ How well solutions are explained.
  ♦ Quality of code demonstrated where applicable.

  Further details will be provided in the assignment handout.
  Due date:
  Week 10

- **Assessment task 4**

  Title:
  Assignment 4 - Parsing
  Description:
  This will be a programming assignment.

  Further details will be provided in the assignment handout.
  Weighting:
  15%
  Criteria for assessment:

  ♦ How well solutions are explained.
  ♦ Quality of code demonstrated where applicable.

  Further details will be provided in the assignment handout.
  Due date:
  Week 12

Examinations

- **Examination 1**

  Weighting:
  40%
  Length:
  3 hours
  Type (open/closed book):
  Open book
  Electronic devices allowed in the exam:
  Calculators

Assignment submission

It is a University requirement
(http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) for
students to submit an assignment coversheet for each assessment item. Faculty Assignment
coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check
with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the
online assignment submission, hand-in a hard copy, or use an online quiz).

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special
consideration process:
http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after
receipt, whichever is later

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:
http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Assessment
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- Grading Scale
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html)
- Discipline: Student Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html)
- Academic Calendar and Semesters (http://www.monash.edu.au/students/key-dates/);
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/); and
- Academic and Administrative Complaints and Grievances Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.
- Codes of Practice for Teaching and Learning
  (http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis

- Website: http://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.