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FIT5166 Information retrieval systems - Semester 2, 2013

This unit presents students with the theory and practice underlying computerised information retrieval. Topics covered include: history and context of information retrieval systems, retrieval models, Boolean, vector space and probabilistic, evaluation strategies, test collections, web search engines, indexing, content-based multimedia retrieval and relevance feedback.

Mode of Delivery

Caulfield (Evening)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload requirements

A rough estimate of the hourly commitment in this unit breaks down as follows:

- 2 hours per week in lectures
- 3 hours per week in associated reading and research
- 2 hours per week in tutorial and/or lab classes
- 2 hours per week averaged across the semester on assignments
- 2 hours for the final unit examination

Additional to this would be time taken to study for the final exam. These figures are just approximations but can be taken as a general guide.

Chief Examiner

Dr Campbell Wilson

Campus Lecturer

Caulfield

Campbell Wilson

Tutors

Caulfield

Michael Niemann

Viranga Ratnaike

Shan (Dora) He
Academic Overview

Learning Outcomes

At the completion of this unit students will:

• appreciate the context and application of information retrieval systems;
• understand the different models of information retrieval and their comparative advantages and disadvantages;
• understand how objective and subjective evaluation strategies are used with information retrieval systems;
• be conversant with the issues and challenges of managing very large collections of heterogeneous data for information retrieval;
• understand how web search engines and search algorithms are constructed, utilised and deployed;
• appreciate how to index different media;
• understand how information retrieval systems can be used for the retrieval of audio-visual information;
• appreciate the theoretical and practical underpinnings of relevance feedback in information retrieval systems.
## Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>This schedule is subject to change, please refer to the Lecturer for updates</td>
<td>Only basic details are included in this guide. Please refer to the unit website (on Moodle) for details. Further information will be provided in the week 1 lecture. Assessment due dates may be subject to change. Any changes will be communicated to you by the Lecturer.</td>
</tr>
<tr>
<td>1</td>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The Boolean Model and Simple Linguistic Analyses</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The Vector Space Model</td>
<td></td>
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<tr>
<td>4</td>
<td>Web Search</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Evaluation</td>
<td></td>
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<tr>
<td>6</td>
<td>Relevance Feedback</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Language Models</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>The Probabilistic Model</td>
<td>Assignment 1 (Implementation) Due</td>
</tr>
<tr>
<td>9</td>
<td>Text Classification</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Practical IR</td>
<td>Assignment 2 (Report) Due</td>
</tr>
<tr>
<td>11</td>
<td>Content-based Image Retrieval</td>
<td>Student Presentations</td>
</tr>
<tr>
<td>12</td>
<td>Advanced Topics</td>
<td>Student Presentations</td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken in SWOT VAC</td>
</tr>
</tbody>
</table>

*Unit Schedule details will be maintained and communicated to you via your learning system.

## Assessment Summary

Examination (2 hours): 50%; In-semester assessment: 50%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Retrieval System</td>
<td>20% (including interview)</td>
<td>Week 8</td>
</tr>
<tr>
<td>Implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Retrieval Report/Essay</td>
<td>25% essay, 5% presentation</td>
<td>Week 10 with presentations in Weeks 11 and 12</td>
</tr>
<tr>
<td>Examination 1</td>
<td>50%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>
Unit Schedule

Teaching Approach

Lecture and tutorials or problem classes
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at
http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

Please ask lots of questions during lectures and tutorials. You won't be assessed on the quality of your questions, but you will get a lot more out of the unit!

• Assessment task 1

  Title: Information Retrieval System Implementation
  Description: Implement a vector-space based information indexing and retrieval system. The system must be written in Java. More detailed specifications will be provided in week 2.
  Weighting: 20% (including interview)
  Criteria for assessment: The degree to which the assignment implementation matches meets the requires specifications. Criteria also include an assessment of student understanding of their submission.
  Due date: Week 8

• Assessment task 2

  Title: Information Retrieval Report/Essay
  Description: A 3,000 word essay on an approved research topic related to information retrieval.
  Weighting: 25% essay, 5% presentation
  Criteria for assessment: The report will be assessed on the usual criteria, namely: breadth of literature survey, quality of analysis of literature and topicality.
  Due date: Week 10 with presentations in Weeks 11 and 12
  Remarks: Topics for the report will need to be pre-approved through the lecturer. Details of this process will be provided in class.
Examinations

- Examination 1

  Weighting: 50%
  Length: 2 hours
  Type (open/closed book): Closed book
  Electronic devices allowed in the exam: None

Learning resources

Monash Library Unit Reading List
http://readinglists.lib.monash.edu/index.html

Feedback to you

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

- Informal feedback on progress in labs/tutes
- Graded assignments without comments
- Interviews
- Quiz results

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.monash.edu.au/exams/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.

Resubmission of assignments

Students may generally resubmit assignments 1, 2, 3 and 4 any number of times before the due date. More details will be provided in class.

Referencing requirements

Referencing should follow the IEEE style.
Assessment Requirements

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). Please note that it is your responsibility to retain copies of your assessments.

Online submission

Details as to how to submit assignments 1, 2, 3 and 4 online will be provided in class.

Recommended Resources

Recommended reading will be provided during the lectures as appropriate.
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:

Key educational policies include:

- Academic integrity;
  http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.html
- Assessment in Coursework Programs;
- Special Consideration;
  http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html
- 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/dates/
- Orientation and Transition; http://intranet.monash.edu.au/infotech/resources/students/orientation/
- Academic and Administrative Complaints and Grievances Policy;
  http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.html
- Code of Practice for Teaching and Learning;
- Graduate Attributes Policy
  http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.html

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 http://www.monash.edu.au/students. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.
Disability Liaison Unit

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://www.monash.edu/equity-diversity/disability/index.htmlTelephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at SunwayEmail: dlu@monash.eduDrop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus

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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Student feedback as to what they believe would be improvements can be summarised as:

1. More recorded lectures
2. Less assignments
3. More mathematical training

Response for 2013:

1. We will endeavour to provide more recorded material during the semester, in particular for those concepts that could be considered more difficult.

2. Last year assignments were broken up into sections and automatically graded for some sections. This approach is not being used in 2013. There are less assignments in 2013, but the effective number of tasks remains the same.

3. A degree of mathematical literacy is assumed, and some aspects of the unit will necessarily require mathematical skills. While there will be time to explain some basic concepts, students should be prepared to seek out extra learning resources that will help them with mathematics.

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