



COMP249

Web Technology

S1 Day 2015

Dept of Computing

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General Information

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Credit points

3

Prerequisites

(COMP115(P) or COMP155(P)) and (ISYS114(P) or ISYS154(P))

Corequisites

Co-badged status

Unit description

This unit covers a range of techniques and concepts that are relevant to implementing systems on the world wide web. From web site development using HyperText Markup Language (HTML) and eXtensible Markup Language (XML), through to complete client–server applications, the unit explores the full spectrum of this technology, providing insight into the standards underlying the web and the programming techniques used to exploit these standards to build web applications.

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:

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment Tasks

Name	Weighting	Due
<u>Web Application Design</u>	5%	Week 4
<u>Workshop exams</u>	16%	Week 3, 6, 9, 12
<u>Web Application</u>	20%	Weeks 7 and 10
<u>Report</u>	14%	Week 12
<u>Exam</u>	45%	TBA

Web Application Design

Due: **Week 4**

Weighting: **5%**

This is a design task on HTML and CSS. You will be asked to write static HTML pages and add a CSS style.

This is a diagnostic task and submission will be before census date.

You will submit this task online via iLearn.

On successful completion you will be able to:

- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.

Workshop exams

Due: **Week 3, 6, 9, 12**

Weighting: **16%**

There will be four practical exams scheduled during the workshops of weeks 3, 6, 9, 12 where you will be asked to write Python code or work with web technologies. The exam questions will

be of the same type as the exercises of the workshops of the preceding weeks.

The first exam will be before census date.

You will submit the answers during your scheduled workshop via iLearn.

On successful completion you will be able to:

- Explain what World Wide Web is and how it works.
- Design and develop a database-backed web site using a modern scripting language.

Web Application

Due: **Weeks 7 and 10**

Weighting: **20%**

This is the major programming task for this unit. You will develop a web application that makes use of a database and allows users to login, carry out some transactions, and logout. You will be provided with a set of unit tests that your code must pass as well as a set of functional requirements for the application.

You will submit this task online via iLearn in two stages.

On successful completion you will be able to:

- Design and develop a database-backed web site using a modern scripting language.

Report

Due: **Week 12**

Weighting: **14%**

You will write a report on an aspect of web design and development. This will involve you researching the topic to find sources of information and developing your report. You will be provided with pointers to resources but will be expected to find more based on your own research.

You will submit this report online via iLearn.

On successful completion you will be able to:

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Exam

Due: **TBA**

Weighting: **45%**

The final exam will assess your ability to describe and explain the technologies we have covered in the unit. In particular we will ask about the special topics covered towards the end of the unit on advanced and emerging web technology topics.

On successful completion you will be able to:

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Delivery and Resources

Classes

COMP249 is taught through a mixture of traditional lectures and online video presentations.

Each week a number of video presentations will be made available on iLearn, you should watch these and follow up on the topics covered before the lecture on Wednesday. The lecture will recap some of the video content and provide a forum for discussion of the topics of the week. Some new material may be presented in the lecture if that format is more appropriate.

You will also have a two hour workshop each week in the computer laboratory. This will be used as a combined tutorial and practical class, with tasks each week to engage you in the topics we are discussing. It is important that you stay up to date on these tasks so that you will be better prepared for the workshop exams and for the major assessment in the unit. The workshops give you a chance to talk over any problems with your tutor.

Four of the workshop sessions will include an exam with questions related to the tasks that you carry out in the workshops.

Since your tutor will be keeping track of your marks, you should attend the workshop that you enroll in. If you do need to change, make sure your tutor and the tutor in the new class agree.

Required Texts

There is no required text for COMP249 this semester.

We have written a set of notes for the unit which will be added to through the semester. You can find them here:

- [Python Web Programming](#)

We will also provide notes, slides and links to other resources each week. It is important that you follow up links provided with the video presentations and in the notes on each topic.

Required Technology

You will be writing server side programs in [Python 3.4](#). We will use PyCharm as the recommended development environment although you are free to use your own favourite editor if you wish. You will be making use of a number of different web browsers (Firefox, Internet

Explorer, Chrome, Safari, Opera...) to test web pages. All of this software will run on Windows, Mac or Linux.

Unit Schedule

The schedule below is the planned topic list for the unit but minor changes may be made in response to student feedback or other factors. See the iLearn unit page for the definitive and more detailed week by week breakdown.

1. Core Web Technology
2. HTML, CSS, Python
3. Web Servers, Python Web Scripting, Bottle
4. Forms Processing, Databases
5. Cookies, Web Application Development
6. HTML, CSS, Web Design
7. Javascript, Security on the Web
8. Usability and Accessibility
9. Data on the Web
10. Using Data from the Web
11. Advanced Application Architectures
12. Mobile Web Development
13. Review

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.

Disruption to Studies

The University recognises that students may experience disruptions that adversely affect their academic performance in assessment activities. Support Services are provided by the University to assist students through their studies. Whilst advice and recommendations may be made to a student, it is ultimately the student's responsibility to access these services as appropriate.

Please see the [Disruption to Studies](#) page for details of what is covered by this policy and how to make a submission.

If a Supplementary Examination is granted as a result of a Disruption to Studies request, the examination will be scheduled after the conclusion of the official examination period.

Grade Appeal

In case of problems arising with your final grade, the first step is to organise a review. The Department recommends that you request an appointment with the convenor of the unit in order to review your grade. If the review does not solve the problem, a formal Grade Appeal can be lodged.

See the [University Grade Appeal Policy](#).

Academic Honesty and Plagiarism

[University Academic Honesty Policy](#)

Plagiarism involves using the work of another person and presenting it as one's own. The Department, in line with University policy, treats all cases seriously.

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](#)

The staff on the unit are here to help you succeed in your study. Please feel free to contact your tutor or your lecturer at any time if you are having trouble meeting any deadline or staying up to date with the work in the unit.

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.

Students with a disability are encouraged to contact the [Disability Support Unit](#) 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

The Science Centre, ground floor in building E7A, is the first point of call for most enquiries relating to your program of study.

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.

In the first instance, students should contact their tutor if there is a problem with hardware or software during a workshop session. If they can't resolve the issue, or if the problem occurs outside of a class time, then contact the [ScienceIT](#) support desk on level 3 of E6A.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- Design and develop a database-backed web site using a modern scripting language.

Assessment task

- Report

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Critique web design and apply good design principles.
- Critically evaluate contemporary and emerging Web technologies.

Assessment task

- Report

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Web Application Design
- Workshop exams
- Web Application
- Report
- Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Critique web design and apply good design principles.
- Critically evaluate contemporary and emerging Web technologies.

Assessment task

- Report

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Design and develop a database-backed web site using a modern scripting language.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Web Application Design
- Web Application
- Report

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Explain what World Wide Web is and how it works.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Workshop exams
- Report

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment task

- Report

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- Explain the legal and ethical issues relating to web applications.

Assessment task

- Report

Changes from Previous Offering

The main change this year is the introduction of workshop exams rather than weekly

submissions from the workshops. There will be four exams through the semester and they will test your programming knowledge and ability to solve problems. Questions will be similar to those that you have done in previous weeks workshops.

The main web application assignment is similar to previous years, however the requirement that you pass this assignment to pass the unit has been removed. This requirement was causing a lot of stress and extra work for students (and staff) and was not really achieving the desired goal.

This is still an important assignment, and we expect everyone to be able to complete it; however you will not now fail the unit if you don't quite meet the requirements.

We have also introduced a new toolkit for writing web applications this year. Bottle is a simple Python web framework that helps organise your code and removes some of the complexity of WSGI. We hope that it will allow you to concentrate on the important features of web applications rather than getting stuck on programming complexity.

Grading Standards

Your final grade depends on your performance in each part of the assessment. For each task, you receive a mark that reflects your standard of performance regarding each learning outcome assessed by this task. Then the different component marks are added up to determine your total mark out of 100. Your grade then depends on this total mark and your overall standard of performance.

Pass: in order to pass the unit you must at least:

- attend all workshop exams;
- make a reasonable attempt at the Web Application assignment;
- achieve a pass in the final exam.

Credit: all of the above plus shows a sound understanding of web technology, able to provide full solutions to all set assignment work and demonstrate an appreciation of how everything works together on the web.

Distinction: all of the above plus a demonstrated ability to apply the technologies covered to new problems or in new ways. Assignment solutions are excellent and well presented, implementing extended features or displaying high quality work.

High Distinction: very exceptional students who show a complete mastery of web technologies and are able to demonstrate their thorough understanding of the web at large and the issues involved in building modern web applications.

Criteria for passing the different assessment tasks will be made clear in the guidelines distributed with the task descriptions.

Your final grade will be derived by combining the marks from the in-term assessment and the final examination. You will be given a standard normalised grade (SNG) that reflects your achievement in the unit but this might not be a simple sum of the component marks.

Late Submission

Unless you have made prior arrangements for late submission due to unforeseeable circumstances, you will be penalised one mark for every day that you submit late.

If you are unable to attend a workshop exam for any reason you must submit a Disruption to Studies notification immediately and attend a supplementary examination as arranged by the unit staff.