School of Computing and Information Systems

Unit Outline

KXC381 Advanced Web Development

February - June 2012
Hangzhou, China

Unit Coordinator
Dr. Joel Scanlan
E-Mail: Joel.Scanlan@utas.edu.au
Phone: (03) 6226 7825
Room: 215, Sandy Bay Campus, Hobart
UNIT OVERVIEW

Introduction

In this unit you will learn concepts and skills that will enable you to develop well designed, efficient, and safe dynamic web applications that make use of server-side scripting and that can interact with both users and "back-end" data.

Prerequisites

KXC151

Unit Weight

12.5% of one academic year

Teaching Pattern

Lectures: 2 hr/wk
Selfstudy: 1 hr/wk
Tutorials: 1 hr/wk

Unit Content

NOTE: This table shows the approximate sequence in which topics will be covered - more details and links to associated resources are to be found on the schedule page of the MyLo site.

week 1:
- Unit Introduction
- Overview of Client / Server concepts and Internet
- Compare static / dynamic web pages
- Overview of PHP

week 2:
- Writing php
  - planning
  - coding standards
  - variables
  - "input / output"
  - built in functions
  - built in objects

week 3:
- php - extended example showing
  - using arrays
  - writing and using functions
  - using information from the query string
- Introduction to web security concerns

week 4:
- Collecting information from users
  - Revise xhtml forms
  - sending form information to the server
  - using form information on the server side
- Form validation - compare client side / server side
- Maintaining state (HTTP is a stateless protocol) (mention only - more later)
- Security concerns when using forms - intro

week 5:
- Collecting information from users
- Maintaining state (HTTP is a stateless protocol)
- Security concerns when using forms
- Introduction to persistent data storage - files and databases
- php file functions - reading from files
  - unix file permissions

week 6:
- Persistent data storage in files
  - reading files
  - writing to files
- File information
- Date and time information

week 7:
- Using php to set HTTP headers
- Authentication & Authorisation
- Overview of relational database concepts and their implementation in MySql

week 8:
- Concept of a session - session maintenance
Using cookies - session maintenance and other purposes
Extended examples

week 9:  MySQL databases
  creating tables
  data types of fields
  inserting / altering / deleting data
Using information from users to create database queries - security concerns

week 10:  Authenticated sessions with passwords stored in a database
Using php to produce content other than xhtml
Creating images
  using php functions
  using libraries

week 11:  Asynchronous interactions between clients & servers (AJAX)
  sending data to refresh part of a page
  methods of data transfer
"mashups"
Using third party APIs

week 12:  Overview of web Architectures
Searching iweb sites
  Search Engine Optimisation
Consolidation of security related topics

week 13:  Revision - overview of topics
Exam preparation

For more information see the section titled 'Content' on the unit website.

Prior Knowledge and/or Skills

Students will be expected to have the following (from prerequisite units and / or their own reading):

- An understanding of and ability to use basic programming constructs (variable including arrays, assignment operations, arithmetic operations, logical tests, branching flow of control, looping flow of control).
- An understanding of and ability to implement (X)html markup to create valid web pages that can be rendered by a browser.

Learning Outcomes

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

A student of this unit should be able to contribute to meeting the internet and Web applications and service requirements of individuals, organisations and the wider community. The graduate should be able to:

1. demonstrate foundational Internet and Web application knowledge of:
   - programming of Internet/Web applications
   - server/client systems for Internet/Web information services
   - historical and current trends for next generation innovations
2. apply knowledge of Internet/Web principles and technical skills to develop and maintain solutions by:
   - using abstraction and Internet/Web service paradigms
   - creating artefacts using a server side programming techniques and database
   - adapting existing and emerging server-side and client-side technologies
3. act professionally by:
   - communicating in different modes to diverse audiences
   - adhering to professional and ethical codes of conduct
   - working independently

Generic graduate attributes

The university has defined a set of generic graduate attributes expected in its graduates.
http://www.utas.edu.au/__data/assets/pdf_file/0003/214662/Generic-Attributes-of-Graduates.pdf Your course is designed to enable you to develop generic skills that are valued in, and expected of, graduates. These are skills that you will need to develop over time. Hence you are encouraged to look for opportunities, as you study each unit, to reflect on and improve these skills.

- Learn a new programming language and apply this language to develop dynamic Web pages;
- Identify a suitable technique for a given Web information management task;
- Conceptualize tasks to program in Web environment;
- Acknowledge the technical implications in online communication system.
UNIT ASSESSMENT

Assessment Pattern

Internal (40%), Exam (60%)

Assessment Summary

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial tests</td>
<td>10%</td>
<td>Tutorial Time in Weeks 3,6,12</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>10%</td>
<td>Thursday 5 April, at 3:00PM (Week 8)</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>Thursday 3 May, at 3:00PM (Week 12)</td>
</tr>
<tr>
<td>Exam</td>
<td>60%</td>
<td>University Examination Period</td>
</tr>
</tbody>
</table>

Assessment Items

Item 1: Tutorial tests
Title: Tutorial tests
Type: In-Semester - test
Task Length: Three (3) tests
Weighting: 10%
Links to Learning Outcomes: 1,2,3
Due: Tutorial Time in Weeks 3,6,12
Description: Each test will consist of some short questions and some small programming exercise both to be completed / demonstrated in tutorial time.

Item 2: Assignment 1
Title: Assignment 1
Type: In-Semester - individual assignment
Task Length: not applicable
Weighting: 10%
Links to Learning Outcomes: 1,2,3
Due: Thursday 5 April, at 3:00PM (Week 8)
Description: Develop a simple “dynamic” web application (web site) that makes use of server-side programming in PHP.

Item 3: Assignment 2
Title: Assignment 2
Type: In-Semester - individual assignment
Task Length: not applicable
Weighting: 20%
Links to Learning Outcomes: 2
Due: Thursday 3 May, at 3:00PM (Week 12)
Description: Extend the dynamic web site developed in assignment 1. Students will be expected to add various features.

Item 4: Exam
Title: Exam
Type: Formal Examination
Task Length: 3 hours
Weighting: 60%
Links to Learning Outcomes: 1,2,3
Due: University Examination Period
Description: Students will be permitted to take a single sheet of A4 paper (hand written on both sides) into the examination.

See the 'Assessment' section in unit website for more detailed information about assessment items.

How your Final Grade will be determined

Overall assessment will be based on the student’s performance throughout the semester as well as in a formal examination. In order to achieve a pass (or better) result, a student must obtain:

1. at least 45% of the total mark for in-semester assessment items
2. at least 45% of the mark for the formal examination
3. at least 50% of the overall mark

Attendance Requirements

It is a requirement of your Chinese university that you attend all classes. UTAS supports this principle. It is our belief that attendance in class leads to better engagement with the subject matter and therefore to better results. Please attend all classes.
UNIT RESOURCES

Unit Web Site

This unit is Web Dependent: content. This means that you will need to use the Web for this unit. The unit website contains unit information and resources. The unit website is accessed from http://www.utas.edu.au/coursesonline/. You will need to use your University of Tasmania email pop account username and password to log on to the MyLO system. Once authenticated by the system your personalised MyLO Learning Online area will be displayed. It contains links to the websites that you have permission to access - including the website for this unit. If you are not able to access the unit website, please contact the technical staff at ZUT.

Prescribed Text


Readings

Web based materials and resources that will be referred to during the semester.

Software

The software that you will need to access the unit website and to study this unit, including general purpose software such as word processors, is provided on the computers in the computing labs. If you intend to use software on other computers please check that the versions are compatible.
GENERAL RESOURCES

School Website

School of Computing and Information Systems - Faculty of Science, Engineering, and Technology.
http://www.utas.edu.au/cis

Faculty Website

Information and Resources for Faculty of Science, Engineering and Technology students are available on the faculty website at: http://www.utas.edu.au/scieng

University Website

Information and Resources for 'Current Students' are available on the university website at: http://www.utas.edu.au/students/

School Help Desk

Contact technical staff at ZUT for information about accessing and using the Computer labs.

University Services and Support

If you are experiencing difficulties with your studies or assignments, have personal or life planning issues, disability or illness which may affect your course of study, you are advised to raise these with your lecturer in the first instance.

The University has staff available to assist you, such as the:

- Learning Development Advisor
- Student Counselor
- Careers Advisor
- Disability Officer

For more information and contact details see the Services and Support section on the University 'Current Students' web page: http://www.utas.edu.au/students/
General Assessment

Approach to Learning

The University is committed to high standards of professional conduct in all activities, and holds its commitment and responsibilities to its students as being of paramount importance. Likewise, it holds expectations about the responsibilities students have as they pursue their studies within the special environment the University offers.

The University's Code of Conduct for Teaching and Learning states:

Students are expected to participate actively and positively in the teaching/learning environment. They must attend classes when and as required, strive to maintain steady progress within the subject or unit framework, comply with workload expectations, and submit required work on time.

You are expected to spend about 130 hrs studying in this unit - this includes attendance at scheduled teaching sessions. (For a 13 week semester this is, on average, 10 hr/wk.) This is the amount of study time that the 'typical' student will need to reach the level of competence and understanding required to fulfil the unit objectives. You are expected to:

- attend all scheduled teaching sessions, unless otherwise notified by the unit coordinator
- prepare for, and actively participate in all scheduled teaching sessions
- complete the assigned learning tasks
- review what has been learnt
- complete assessment items and submit them on time
- access and be familiar with the information and resources available on the unit website
- seek help from teaching staff if you have any questions or difficulties in studying this unit

You are encouraged to read the university's Code of Conduct for Teaching and Learning. Part A describes the 'Responsibility of the University to Students' and part B describes the 'Responsibilities of Students to the University'.


It is expected that students will familiarise themselves with access and use of the MyLO system operated by the University for the electronic delivery of course materials, and for various forms of communication.

It is expected that students will consult email sent to their University email address at least twice a week for notices relating to the administration of the unit, and for notification of the results of assignments.

It is expected that students will read the background material specified in the course curriculum, will actively attend and participate in tutorials, and be prepared to discuss relevant issues arising with tutors, lecturers and fellow students.

Student Expectations of the Unit

Students enrolled in this Unit may reasonably expect the following:

1. To be able to contact a lecturer or tutor by electronic mail, to raise issues arising in the unit, either relating to content or student performance within the unit.
2. Subject to availability, to be able to discuss such issues in person with the lecturer or tutor.
3. That assignments will be marked and the marks will normally be returned within 3 weeks of due dates.
4. That all relevant notices regarding the administration of the unit, including any necessary changes, will be communicated to all students enrolled in the unit via email.

These expectations are in addition to those specified in relevant University regulations.
Plagiarism

Unless specifically stated in the specification of the assessment item provided on the unit website, it is required that:

- work submitted by a student is the work of that student alone OR
- where the assessment item is to be completed by a group of students, the work submitted by the group of students is the work of that group of students alone.

While students are encouraged to discuss the assignments in this unit and to engage in active learning from each other, it is important that they are also aware of the University's policy on plagiarism. Plagiarism is taking and using someone else's thoughts, writings or inventions and representing them as your own; for example downloading an essay wholly or in part from the internet, copying another student's work or using an author's words or ideas without citing the source.

"Plagiarism is a form of cheating. It is taking and using someone else's thoughts, writings or inventions and representing them as your own; for example, using an author's words without putting them in quotation marks and citing the source, using an author's ideas without proper acknowledgment and citation, copying another student's work.

If you have any doubts about how to refer to the work of others in your assignments, please consult your lecturer or tutor for relevant referencing guidelines, and the academic integrity resources on the web at http://www.academicintegrity.utas.edu.au.

The intentional copying of someone else's work as one's own is a serious offence punishable by penalties that may range from a fine or deduction/cancellation of marks and, in the most serious of cases, to exclusion from a unit, a course or the University. Details of penalties that can be imposed are available in the Ordinance of Student Discipline - Part 3 Academic Misconduct, see http://www.utas.edu.au/__data/assets/pdf_file/0006/23991/ord91.pdf.

The University and any persons authorised by the University may submit your assessable works to a plagiarism checking service, to obtain a report on possible instances of plagiarism. Assessable works may also be included in a reference database. It is a condition of this arrangement that the original author's permission is required before a work within the database can be viewed."

It is important that you understand this statement on plagiarism. Should you require clarification please see your unit coordinator or lecturer. Useful resources on academic integrity, including what it is and how to maintain it, are also available at: http://www.academicintegrity.utas.edu.au

Referencing

The preferred text referencing systems for the School is the Harvard system (also referred to as the author-date system). In your written work you will need to support your ideas by referring to scholarly literature, works of art and/or inventions. For information on presentation of assignments, including referencing styles: http://utas.libguides.com/referencing

It is important that you understand how to correctly refer to the work of others and maintain academic integrity. Failure to appropriately acknowledge the ideas of others constitutes academic dishonesty (plagiarism), a matter considered by the University of Tasmania as a serious offence. The university document on plagiarism contains information about referencing the work or ideas of others (see http://www.utas.edu.au/plagiarism/).
Submissions

The details of the submission method (paper, electronic or other) for each assignment will be supplied in a separate assignment specification sheet. All in-semester assignment submissions (including electronic submissions) are to include an Assignment Cover Sheet which includes a statement confirming that the submission is your own work. If this undertaking is not signed, the assignment will not be marked. The Assignment Cover Sheet is available on the School's web site http://www.utas.edu.au/computing-information-systems/resources.

Extensions

Assessment items will not be accepted after the due date except under the conditions stated in the School policy on late assessment. http://www.utas.edu.au/__data/assets/pdf_file/0003/231960/ExtensionPolicy.pdf (PDF - 100KB).

Review of Assessment and Appeals

1. It is expected that students will adhere to the following policy for review of any piece of continuous assessment.
   a. Within 5 days of the release of the assessment result, the student should request an appointment with the Lecturer. The student should be prepared to discuss specifically which section of the marking criteria they are disputing and why they consider the mark is inappropriate.
   b. Following this discussion, students may request a formal remark of the original submission (in accordance with Rule of Academic Assessment 111, clause 22.1). This remark will be undertaken, where practicable, by an alternative assessor.
2. Students may also request a review of the final result in a unit. The request and payment must be made within 10 days from the date of the result notification. Students are referred to Rule of Academic Assessment 111, clause 23 at http://www.utas.edu.au/university-council/university-governance/rules and http://www.studentcentre.utas.edu.au/examinations_and_results/results/result_review_results.htm.

Complaints Procedure

It is expected that students will adhere to the following policy for making any complaint or grievance directly related to a Unit:
   a. In the first instance, students are to approach the Lecturer or Unit Coordinator concerned and arrange a time to speak with them about their concern.
   b. If an issue remains unresolved, the student should approach the Head of School and arrange a time to speak with them about their concern.

If the School's internal policy of complaints is unable to resolve an issue, students should consult Ordinance 8 Student Complaints for further direction, see http://acserv.admin.utas.edu.au/complaints_info.html

Formal Examination

The formal examination will be held at ZUT, Hangzhou, and is conducted by the University Registrar.

Final Grade

Passing grades will be awarded based on the AVCC guidelines:

- **PP** at least 50% of the overall mark but less than 60%
- **CR** at least 60% of the overall mark but less than 70%
- **DN** at least 70% of the overall mark but less than 80%
- **HD** at least 80% of the overall mark

In order to comply with the benchmarks set by the Faculty of Science, Engineering & Technology for distribution of grades in units, both the in-semester and examination marks that students obtain may be adjusted either upwards or downwards. See http://fcms.its.utas.edu.au/scieng/scieng/policies.asp for details of the Faculty Assessment Guidelines.