



School of Information Technology

# **B336 Advanced Internet Computing**

**Semester 1, 2001**

## **Unit Outline**



# Introduction

## Unit Overview

The focus of this unit is to expand on your technical understanding and proficiency in developing Internet and World Wide Web software. The unit will build on the materials you have learnt in B211 Internet Computing.

Students who have completed B211 Internet Computing should have a basic understanding of the underlying details concerning how the Internet and the WWW works. In this unit, students will be given the chance to explore the detailed nuts and bolts of key technologies, by having hands on experience in writing and managing the software that forms the basis of these technologies.

Students enrolled in this unit should expect very heavy programming work. Students are expected to have completed B104 Principles of Computer Science and have good fundamental programming skills.

## Learning Objectives

Your learning objectives for this unit are:

1. To understand in detail the technical workings of key Internet and web technologies, specifically web communications (HTTP clients and servers), XML and emerging wireless device development frameworks.
2. Be able to write software that drives the technologies in (1).
3. Understand the basic requirements needed to construct Internet solutions for organizations and enterprises.
4. Develop skills in communications, information gathering, trial-and-error, etc to derive Internet solutions.

To allow students to achieve these objectives, the content of this unit can be broadly seen in two respects:

- a) Material given to you in lectures, study guide, and laboratories to give you the foundations for objectives 1,2 and 3 above. Compulsory assignments and the end-of-semester examinations will assess your progress in achieving these objectives.
- b) Information and skills you pick up yourself, while doing the optional projects, and participating in the discussion forum. This will help you achieve objective 4.

It is a fundamental requirement for anyone to be proficient in the ever-changing world of the Internet that the person has capabilities to independently upgrade their skills and expand their knowledge base. It is for that reason that objective 4 is such a critical part of this unit. For that reason, part of your assessment will be on evidence that you are able to do so. Assessment components where you are expected to gather material OUTSIDE of the course content or more in depth than that which is presented in the lectures and labs<sup>1</sup> will be stated in the assessment description.

See section four of this unit outline for details of the assessments.

## Prerequisites

Students are expected to have completed

- B104 Principles of Computer Science, and
- B211 Internet Computing.

## Unit Coordinator

Your coordinator for this unit is **H.L. Hiew**, in the School of Information Technology.

### *Contact Details:*

<b>Unit Coordinator</b>	H.L. Hiew
Email:	<a href="mailto:h.hiew@murdoch.edu.au">h.hiew@murdoch.edu.au</a>
Phone:	(08) 9360 6058
Room:	S&C2.4 in the Science and Computing Building

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<sup>1</sup> However, this does NOT mean students cannot make use of unit resources such as fellow students, the unit's online discussion forum, or actively approaching the unit coordinator, other lecturers and tutors. You are strongly encouraged to do so. What the condition means is that you will not find solutions if you only passively assimilate the material given to you in the unit. You have to go out and LOOK!

## Administration

Secretary, School of Information Technology

Phone: (08) 9360 6120 or (08)9360 2521

Fax: (08) 9360 2941

Room: 2.049 in the ECL Building

Divisional Office, Division of Business, I.T. and Law

Phone: (08) 9360 2730

Room: 3.037 in the ECL Building

## Unit Web-Site

The unit web-site is at:

<http://www.it.murdoch.edu.au/~hiew/b336>

**All students enrolled in this unit are required to have Internet access and refer to this web site regularly**, especially to the section containing unit announcements: The announcements will be made in the online discussion forum under the topic “Announcements”:

<http://www.it.murdoch.edu.au/~hiew/b336/bbs>

Students are required to refer to the announcements **at least once a week**.

## Unit Timetable

The following timetable will help you to plan your study over the semester.

This schedule for the lecture topics **is subject to change** during the semester. An up-to-date version of this lecture timetable can be found on the unit web-site:

<http://www.it.murdoch.edu.au/~hiew/b336/unitinfo/timetable.shtml>

<http://www.it.murdoch.edu.au/~hiew/b336/lectures>

Please note that the assignment due dates below are all on Mondays, as oppose to the normal Friday due dates for most units. Extensions to the assignment due dates (only under **extremely** special unforeseen circumstances) will be announced online in the discussion forum.

<b>Week</b>	<b>Lecture Topics</b>	<b>Lab Exercises</b>	<b>Assessments Due</b>
One 19/2 – 23/2	Lect 1: Unit Introduction Lect 2: Web client/server model		
Two 26/2 – 2/3	Lect 1 & 2: Web server configuration and administration	Getting familiar with the ActivePerl environment	
Three 5/3 – 9/3	Lect 1 & 2 : Implementing web clients and web servers	Apache installation and configuration	
Four 12/3 – 16/3	Lect 1: Other web services using the LWP module Lect 2: Introduction to XML	Implementing your own simple web client and web server	
Five 19/3 – 23/3	Lect 1: The XML document Lect 2: DTD and the XSL style sheet	Implementing your own simple web client and web server	
One-week Semester Break			
Six 2/4 – 6/4	Lect 1 & 2: DOM, SAX and implementing XML parsers and processors	Writing and validating XML documents	Assignment 1 (due 12noon Mon 2 <sup>nd</sup> April 2001)
Seven 9/4 – 13/4	Lect 1: Constructing an XML solution and example XML applications Lect 2: Good Friday - no lectures	Writing XSL style sheets	
Eight 16/4 – 20/4	Lect 1 & 2: The Uncanny X-Men - A quick look at some advanced XML features (XLink, XPath, XPointers and Namespaces, etc)	Implementing XML parsers and processors	
Nine 23/4 – 27/4	Lect 1: Unit coordinator's birthday - holiday for everyone! Lect 2: Battlefield XML – case studies into web service development platforms (Microsoft's .NET, Sun's ONE, IBM's WebSphere, Oracle's 9i, etc.)	Implementing XML parsers and processors	
One-week Semester Break			
Ten 7/5 – 11/5	Lect 1: Wireless communications, services and Devices. Lect 2: Writing wireless applications with WAP	None (you will be too busy finishing Assignment 2)	
Eleven 14/5 – 18/5	Lect 1 & 2: WAP	Implementing WAP applications using the Nokia IDE.	Assignment 2 (due 12noon Mon 14 <sup>th</sup> May 2001)
Twelve 21/5 – 25/5	Lect 1: WAP Lect 2: The future of wireless applications	Implementing WAP applications	

Thirteen 27/5 – 1/6	Lect 1: Exam Revision Lect 2: Wrap up	None	Assignment 3 (due 12noon Mon 28 <sup>th</sup> May 2001)
<b>Week</b>	<b>Lecture Topics</b>	<b>Lab Exercises</b>	<b>Assessments Due</b>
One-week Study Break			
Examinations Period			

# TWO

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## Resources for the Unit

### Unit Materials

*Essential  
Textbook*

None



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*Unit  
Web-Site*

The unit web-site is at:

<http://www.it.murdoch.edu.au/~hiew/b336>



**All students enrolled in this unit are required to have Internet access and refer to this web site regularly**, especially to the section containing important announcements. Students are required to refer to the following important announcements page **at least once a week**.

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### Computing Facilities

#### *Internal Students*

The laboratory used for this unit will be announced in lectures during the first week of the semester, and is available during normal opening hours of 9am to 5pm. Arrangements to use laboratories outside these hours can be made by seeing the Secretary, ECL Building, room 2.049. You will need your Student identity card and a special pass to use the laboratory.

#### *External Students*

External students must arrange their own access to a computer. The computer must have Internet access. Besides accessing the on-line unit

materials, external students will also need to use the computer for programming exercises in assignments.

External students are not required to purchase any software of their own. All software required for this unit is either on a server, or is in the public domain. Further instructions on accessing the server, and on getting required software will be given as the semester progresses. Students are expected to download such software and install them on their own computers.

There are various ways of getting Internet access. Refer to the following page for advice on how to gain Internet access:

<http://cleo.murdoch.edu.au/help/net-access/access.html>

# THREE

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## Lectures and Laboratories

### Lectures

There will be 3 hours of lectures every week, for the duration of the 13 weeks of semester 2, 2000. Attendance in the lectures is not compulsory, but is recommended. The timetable for the lectures can be found at:

[http://www.murdoch.edu.au/oss/legacy\\_pages/timetable\\_enquiry.html](http://www.murdoch.edu.au/oss/legacy_pages/timetable_enquiry.html)

The overheads used in the lectures will be put up on the unit web-site after the relevant lectures. These overheads only contain points used in the lecture presentation. They are not substitutes for lecture attendance and the prescribed reading. The lecture overheads will be available at:

<http://www.it.murdoch.edu.au/~hiew/b336/lectures>

### Laboratory Session

Lab sessions will be run from week 2 to week 13 of the semester. The lab exercises will involve programming work related to material given in the lectures. More specific information about using the relevant software will be supplied. The lab exercises are critical to your understanding of the Internet. You will not be able to complete most of the assignments without doing the exercises.

Every internal student will be required to sign up for a two-hour lab session every week. Note that for all labs, the tutor will only be available for the first hour of the session. The online sign-up form for the lab sessions is at:

<http://www.it.murdoch.edu.au/~hiew/b336/labs/sign-up.shtml>

By signing for a lab session, you will be allocated the tutor responsible for the session. Your tutor will be responsible for:

1. assisting you in the lab exercises every week,
2. marking all your assignments
3. answering any queries related to the unit material.

For external students, you will be notified of your allocated tutor by the External Studies Office. Your tutor will be your primary point of contact for all academically-related matters.

Links to the lab exercises every week will be put in the following page as the semester progresses:

<http://www.it.murdoch.edu.au/~hiew/b336/labs>

# FOUR

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## Assessments

### Assessment components

You will be assessed on the basis of two assignments, an essay, practical participation in a web-site development project, and the examination.

Assignment	Description	Value	Due Date
Assignment 1	Configuring Apache Implementing a web server and client	15%	Monday of week 6
Assignment 2	Writing an XML application	40%	Monday of week 11
Assignment 3	Writing a WAP application	5%	Monday of week 13
Examination	Questions on materials from lectures and labs.	40%	Examination period

### Assignments

The questions and descriptions of the assignments may be found at on the unit web site.

<http://www.it.murdoch.edu.au/~hiew/b336/assignments>

#### *Important Note*

Please read the section regarding *Plagiarism and Collusion* below. The unit coordinator and the University views issues of plagiarism very seriously. You may from time to time come across programs and scripts on the web that may be appropriate as solutions for the assignments. Students may not submit such downloaded material for assessment, **UNLESS**:

1. The student enhances the downloaded material significantly, in line with the unit's objectives (see section 1 of this Unit Outline).
2. The student notifies the unit coordinator **BEFORE** submitting the work, and fully documents the parts of the work that is theirs.

The reason for allowing students to enhance downloaded work is because most work in Internet development is about building on other people work and components to make better products. What is **NOT** acceptable is when developers pass work other people work off as their own.

Do not test the unit coordinator's ability to detect plagiarised work when you do not include appropriate acknowledgements. It takes quite considerable effort to modify someone else's work to pass off as your own. All unacknowledged plagiarised work will be passed on to the Executive Dean for disciplinary action.

## Early and late submissions

Students will get bonus marks for submitting assignments early. The maximum bonus is 25% **of the student's final mark for an assignment** if the assignment is submitted on the first day of semester. The formula used to work out the bonus percentage is:

$$25\% \times \frac{\text{due date} - \text{date submitted}}{\text{due date} - \text{first day of semester}}$$

The purpose of these bonus points is to encourage students to find out about the lecture and lab material required to complete the assignments BEFORE the material is made available in this unit. This is a demonstration of the students' ability to complete independent study, as described in the unit learning objective 4 in section one.

Late assignments will have 10% **of the student's final mark for an assignment** deducted per day.

## Assignment submission

For internal students, assignments should be placed in the B336 assignment box outside the School of IT corridor in level 2, north wing of ECL building, by 12noon on the due date. The cover sheet with the declaration completed must be attached. Cover sheets for each assignment will be available from the page:

<http://www.it.murdoch.edu.au/~hiew/b336/assignments>

External students should mail assignments to the External Studies Office, ECL Building, Murdoch University, Murdoch WA 6150 using the address labels that have been supplied. The cover sheet with the declaration completed must be attached. Other methods of submitting assignments can be found on the page:

<http://www.tlc1.murdoch.edu.au/teach/disted/support/assignments.html>

Assignments are (very occasionally) lost in the Murdoch system, so **all students are required to keep copies of their assignments** until the end of the appeals period after the semester.

Extensions for assignments will be granted only in exceptional circumstances. If something exceptional arises that requires an extension you should contact the unit coordinator *before* the deadline expires. Only the unit coordinator can grant extensions.

### *Important Note*

Reasons which are insufficient to warrant an extension include computer failures; car failures or other transportation difficulties; work conflicts, other study commitments, and dog eating your assignments. 'Losing' work through "computer failure" is not accepted as a reason for late submission of an assignment; students using a computer should know to frequently save and backup, and always have done so. Also, you should identify conflicts with other work and study commitments at the beginning of semester and schedule your time accordingly. If you are unable to do so, contact the unit coordinator advice and special arrangements.

Assignment submissions cannot be accepted after the examination has commenced unless deferred assessment on the unit as a whole has been approved. Deferred assessment may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Applications for deferred assessment must be submitted by the end of week 13 of the semester or, in the event of circumstances arising after that date, before the examination. Refer to the current University Handbook for details or

<http://www.murdoch.edu.au/admin/legsln/regs/bachelor.html#deferred>

## **Examination**

The final examination will be of 3 hours duration and held during the examination period at the end of the semester. It will be closed book exam. The questions in the exam will assess your understanding of the materials in the lectures and labs.

Further guidelines to the examinations, as well as sample examinations will be available on the unit web-site reaching the end of the semester.

The University Examinations Officer will contact external students about the time and venue for the final examination. Metropolitan external students are expected to take the examination on campus, while arrangements will be made for non-metropolitan external students to take the final examination locally.

The University requires that all students sitting end-of-semester examinations (including those held off-campus) must show their 2001 Murdoch University Student Card to facilitate photographic identification. **No other form of identification will be accepted.**

Students may inspect their marked examination scripts and discuss the marking with the unit coordinator within 14 days of the posting of results (Degree Regulation 43).

## **Determination of the final grade**

In order to pass this unit you must:

- achieve a satisfactory performance (normally 50%) in the final examination, and
- achieve a satisfactory performance (normally 50%) in the assignment component.

Your final grade for the unit will be based on your combined aggregate score for the assignment and examination components. Your final grade will be reported by a letter grade according to the following percentage ranges.

<b>Notation</b>	<b>Grade</b>	<b>Percentage Range</b>
HD	High Distinction	80 – 100
D	Distinction	70 – 80
C	Credit	60 – 70
P	Pass	50 – 60
CP	Conceded Pass	40 – 49
S	Supplementary Assessment	45 – 49*
N	Fail	Below 50

- \* Students who achieve more than 50% overall but fail the final examination will receive supplementary assessment similar in kind to the final examination. Those who achieve more than 50% overall but fail the combined assignment/ practical components will receive supplementary assessment related to those parts. After supplementary assessment a student may be awarded a Pass (P), a Conceded Pass (CP) or a Fail (N).

The cut-off points of marks denoting the grades (HD, D, C, P, N) vary between units, and, from year to year, within a unit. cut-off points are determined by the unit coordinators after marking, and are based on the standard of work, which, in their opinion, is reflected by a particular range of marks. Coordinators use their professional judgement in the allotment of grades at the margin between successive grades, based on students' overall performance in relation to the objectives of the unit.

The Unit coordinator may re-scale marks across assessment tasks, some of which may prove to be easier than others, or across tutors, some of whom mark more or less highly than others. Also, because we have the right to scale overall marks, the grade cut-offs given above are notional and may be changed if we consider the overall results for the unit too far from the standard norms of the University.

## **University policy on assessment**

Assessment for the unit as a whole is in accordance with the provisions of Degree Regulations 40-48. Check these in the current Murdoch University Handbook and Calendar and at

<http://www.murdoch.edu.au/vco/secretariat/admin/codes/assessapp2.html>

Your attention is particularly drawn to the **University policy regarding assessment roles and responsibilities** which lists your responsibilities as a student (as well of those of unit coordinators and others).

### **Plagiarism and collusion**

Plagiarism constitutes using the work of another without indicating by referencing that the ideas expressed are not your own. Collusion (or unauthorised collaboration) constitutes joint effort between students or others, in preparing material submitted for assessment, except where this has been approved by the unit coordinator. The University regards most seriously any acts of dishonesty in assessment such as plagiarism, collusion, re-submission of previously marked work in different units, examination misconduct and theft of other students' work. These acts could result in penalties including failure in the unit and possible exclusion from the University. For further details please refer to the section on 'Dishonesty in Assessment' in the current Murdoch Handbook Section 1, Assessment and Academic Progress and

<http://www.murdoch.edu.au/vco/secretariat/admin/codes/assessapp2.html#dishonesty>

### **Non-discriminatory language**

Murdoch University is committed to the use of non-discriminatory language in all forms of communication. Students and staff should avoid the use of discriminatory language in units and in all other activities within the University. This applies to both oral and written communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are therefore requested to check your work for this, and to ensure it is non-discriminatory in all respects.

### **Conscientious objection**

Any student with a conscientious belief which is in conflict with teaching and/or assessment practices in this unit, is advised to contact the unit coordinator prior to the start of the unit or in the first three weeks of semester. Early notice increases the chances that alternative arrangements can be made. Further details about what constitutes a conscientious belief and how these claims are assessed can be found in the University's Guidelines on Conscientious Objection in Teaching and Assessment, at:

<http://www.murdoch.edu.au/vco/secretariat/admin/gdelines/consciobj.html>

### **Deferred assessment and special consideration**

Deferred assessment may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Special consideration in the awarding of grades is also possible in some circumstances. Refer to the current University Handbook for details or

<http://www.murdoch.edu.au/vco/secretariat/admin/codes/assessapp2.html#deferred>

### **Explanation of grades and appeals**

Students have the right to appeal their assessment in this unit. First, you should approach your tutor for a review of an assignment. If you are not satisfied with this process, then take your case to the unit co-ordinator. Students who feel they have grounds for appealing against their final grade in this unit should consult the procedures outlined in the Handbook under Degree Regulation 49. See also

<http://www.murdoch.edu.au/admin/legsln/regs/bachelor.html#appeals>

or the Office of Student Services Appeals Procedure

[http://www.murdoch.edu.au/oss/legacy\\_pages/appeals.html](http://www.murdoch.edu.au/oss/legacy_pages/appeals.html)