



## Macquarie University

### MIST 824: Network Systems Management Unit Outline - Information for Students

Please read this unit outline carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult one of the teaching staff.

#### ABOUT THIS UNIT

Information Systems management is very important to many staff and employers. The ability to access and organise data from different systems -- near and far -- is crucial to an effective work environment. Network systems and their organisation are therefore important to a business. With remote access, wireless, internet scans, break ins, viruses, worms and similar issues, office network policy can make or break the organisation. This unit is designed to give students an appreciation of these issues and a technical introduction to relevant network applications.

#### Software:

Mandrakelinux 10.1 operating system, GNU, MySQL, php, Apache web server

#### SCHEDULE FOR LECTURES & PRACS

The unit MIST824 (*internal enrolments only*) is a 4 credit point unit which runs for 12 weeks of classes according to the University calendar, with a term break of two weeks and final exam in Week 14.

	Day	Time	Room
Lectures	Wednesday	9:00 – 11:00	W5C 310
		11.10- 11.40	SISL lab, BD building, 2 <sup>nd</sup> floor
Practical	Wednesday	12-2 pm	Linux lab room, W6B 301
	Wednesday	2-4 pm	Linux lab room, W6B 301
	Friday	11-1 pm	Linux lab room, W6B 301

#### TEACHING STAFF

Unit co-ordinator: Prof. Malcolm Hudson

#### Lecturers:

Prof. Malcolm Hudson  
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Student Resource Centre  
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**Tutors:**

David Bulger            [dbulger@efs.mq.edu.au](mailto:dbulger@efs.mq.edu.au)  
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**Aims**

The unit is designed for students with computing experience and business interests who wish to gain an appreciation of networking and enhance their computing skills. The focus will be on use of Unix and open source software applications for local area networking, introducing internet and office network environments.

We aim to provide experience and understanding of basic network environments. Weekly lab sessions (2 hours) will have a strong 'hands on' orientation.

**Computing**

No prior experience with Linux or networking is required. Students will be expected to gain a reasonable ease of use of Unix, particularly Mandrake Linux 10.1.

**Warning and contract**

Students are admitted on the understanding that they are contributing to developing a new unit and that, while one to one support will be available, problems with the environment will certainly occur and may require both staff and student cooperation to work around. Because you are learning to use a new computer environment -- like living in a foreign environment -- the unit may require significant time from you for the best learning.

In return for this effort, grading will be generous. Assessment will be more strongly weighted to project contribution and independent achievement rather than the usual standardised exam assessment.

**RECOMMENDED REFERENCE TEXTS**

There are several excellent books on Linux and networking, including the following:

Gagne, Moving to Linux, Addison-Wesley

Lasser 'Think UNIX', Ch 1-5

Peek, Todino & Strang, Learning the Unix OS, O'Reilly

Kurose and Ross, Computer Networking, Ch 1,2

These texts are available in the ECommerce lab (W6B 301, Linux room bookcase). They should not be removed from the lab without knowledge of your tutor (see your tutor to sign out a text).

**UNIT WEB PAGE**

Information relating to this unit can be found by visiting the Macquarie University Statistics Department web site. The URL for this unit is <http://www.stat.mq.edu.au/units/mist824/>.

**LEARNING OUTCOMES**

By the end of this unit students should be able to:

- assess critically the structure of a local area network, as well as provide graphical representations of LANs
- carry out simple configuration of network services: firewall, mail, database.
- have an understanding of the principles and the concepts of internet protocols, standards, and network security
- use Unix commands effectively
- configure Linux user environments

**GENERIC SKILLS**

University study aims, not only to provide you with knowledge and skills in a particular academic discipline, but also to equip you with some generic skills. By the end of this unit students should:

- have enhanced their problem solving ability
- have met the challenges of working effectively in small teams
- have improved their communication skills, particularly presentation skills
- have enhanced their critical thinking skills

**TEACHING AND LEARNING STRATEGY**

- students are expected to attend all the lectures and the labs and read widely;
- weekly practical exercises are set for individual assessment of lab tasks;
- three Assignments are set, some questions require group submissions;
- a final Project is due, including presentation to the class and to the tutor;
- if, for any reason, students can not hand in their assessment tasks on time, they must contact their prac tutor or Ayse Bilgin (MIST program co-ordinator) in advance
- students should hand in and collect their marked papers at ERIC (Economic Resource & Information Centre), building C5C room 244

**Lecture Overheads and Readings**

Hard copy and selected photocopies of lecture overheads and related reading will be provided to internal, enrolled students at the lecture each week, together with the prac exercise. The Unit Homepage also provides these materials (click on Lectures). If you miss overheads or notes, refer to the unit home page and download pdf's of the material handed out (available next day).

If you miss the weekly overheads or notes and cannot access the web site ERIC will hold one (only) hard copy of these, available for individual copying by enrolled

students. Ask in ERIC for the *MIST824* folder.

#### **ASSESSMENT**

*It is most important that any concerns about your effective participation in the unit and difficulties being experienced in complying with due dates are communicated in e-mail and in person to Prof. Hudson and to your tutor.*

#### **CRITERIA FOR SUCCESS IN THIS UNIT**

Note carefully that *in order to pass* MIST824, students must satisfy each of the following requirements:

- Submit all assignments
- Perform satisfactorily in the final examination
- Perform satisfactorily in the total assessment
- Perform satisfactorily in the group project.

#### **Overall Assessment**

Students are expected to gain a reasonable level of proficiency in weekly topics

The overall assessment for MIST824 is:

Prac Exercises and Tutorial Participation	10%	
Assignments	20%	
Group Project		20%
Mid semester test	10%	
Final examination	40%	

The mark (SNG) recorded for this unit will be based on the weighted components above.

#### **Assignments**

Be aware that students may find the prac and assignment work required in this unit heavy! Nevertheless, the practical work is considered very helpful by most students.

Prac exercises, Assignments and the Project *must* be prepared using the Linux lab system and applications (e.g. OpenOffice and QuantaPlus, NOT MS Office and Visual InterDev)! *Email submissions will not be accepted.*

There will be three assignments: *on-time submission to ERIC is required.* All assignments are due in ERIC submission box labelled *MIST824* before 9 am on the Wednesday in the weeks indicated (refer to the Table and dates in the schedule which follows). Late submission of assignments generally incurs a penalty, 5% for each day late.

Students must submit all assignments in order to pass, regardless of their performance in the final examination. Students who are unable to submit any assignment on time, because of illness or other valid cause, will need to report the circumstances in writing to the unit coordinator, and documentation must also be provided to the Registrar.

**Mid Semester Test**

This will be held in the first 50 minutes of the week 7 lecture. This test covers the first six weeks of lecture material and readings. Students may bring one A4 sized sheet of notes, formulas, etc., which may be written on both sides and is easily readable (at least 8pt sized font). This summary must be submitted with your test paper. The rest of the lecture will cover new work.

**Final Examination**

The MIST824 final examination is 2 hours 30 minutes long with 10 minutes reading time. This exam will be held on Wednesday 15 June 2005, 9.20 am - midday, and will examine any material covered throughout the course. Students may bring two A4 sized sheets of *handwritten* notes, formulae, etc., which may be written on both sides and must be easily readable (at least 8pt sized font). This summary must be submitted with your exam paper and is marked for conforming to the guidelines given. Any other materials such as lecture notes and textbooks are not permitted. Calculators may be used, provided they are not of the text/programmable type.

**RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES**

While attendance at classes is important it is only a small proportion of the total workload for the unit: reading, research in the library, working with other students in groups, completing assignments, using the computer and private study are all part of the work involved. At Macquarie it is expected that the average student should spend four hours per week per credit point.

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. Information about unavoidable disruption and the special consideration process is available at <http://www.reg.mq.edu.au/Forms/APSCon.pdf>

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled soon after the conclusion of the official examination period.

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester that is the final day of the official examination period.

**UNIVERSITY POLICY ON GRADING**

Academic Senate has a set of guidelines on the distribution of grades across the range from fail to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG).

On occasion your raw mark for a unit (i.e., the total of your marks for each assessment item) may not be the same as the SNG which you receive. Under the Senate guidelines, results may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performances of their students should achieve similar results.

It is important that you realise that the policy does not require that a minimum number of students are to be failed in any unit. In fact it does something like the opposite, in requiring examiners to explain their actions if more than 20% of students fail in a unit.

The process of scaling does not change the order of marks among students. A student who receives a higher raw mark than another will also receive a higher final scaled mark.

**The grades and what they mean are given as below:**

HD	High Distinction	Denotes a performance that meets all unit objectives in such an exceptional way and with such marked excellence that it deserves the highest level of recognition.
D	Distinction	Denotes performance that clearly deserves a very high level of recognition as an excellent achievement in the unit.
C	Credit	Denotes performance that is substantially better than would normally be expected of competent students in the unit.
P	Pass	Denotes performance that satisfies unit objectives.
PC	Conceded Pass	Denotes performance that meets unit objectives only marginally.
F	Fail	Denotes that a candidate has failed to complete a unit satisfactorily.

For further explanation of the policy see

<http://www.mq.edu.au/senate/MQUonly/Issues/Guidelines2003.doc> or

<http://www.mq.edu.au/senate/MQUonly/Issues/detailedguidelines.doc>.

#### **PLAGIARISM**

The University defines plagiarism in its rules: "Plagiarism involves using the work of another person and presenting it as one's own." Plagiarism is a serious breach of the University's rules and carries significant penalties. You must read the University's practices and procedures on plagiarism. These can be found in the *Handbook of Undergraduate Studies* or on the web at:

<http://www.student.mq.edu.au/plagiarism/>

The policies and procedures explain what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee.

### STUDENT SUPPORT SERVICES

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au>.

### UNIT SCHEDULE

Malcolm Hudson (MH) and Len Hamey (LH) will be teaching in weeks indicated below (see table). Don McNeil will lecture in Week 3 (only). The timetable is as follows:

Week	Topic	Application	Asst out	due
1 (LH)	Introduction to Unix <ul style="list-style-type: none"> <li>command line, xterms, shells</li> <li>installation</li> </ul>	Mandrake 9.2* GNU/Linux	Asst 1 (indiv)	
2 (MH)	UNIX windows environment Office suite and publishing Templates and structured document layout	X-windows, GNOME, KDE, OpenOffice*		
3 (Don)	Network applications: Internet file transfer Browsers and mail clients Scripting database transactions & PHPs	gFTP* Firefox* Evolution* QuantaPlus* mySQL*	Asst 2 (group)	
4 (MH)	System administration (files, processes, permissions, installation) file access permissions, access control & inheritance	Urpmi phpMyAdmin*		Asst 1
5 (LH)	Key network concepts: 1. packet, protocol, client/server model 2. addressing (IP address, domain name, DHCP, DNS, ports), gateway 3. Internet HTTP, TCP/IP, UDP, NAT, ISP	webmin* samba-client* SWAT		
6 (LH)	Application to e-mail systems: 1. packets, transport, routers, 2. SMTP protocol, mail formats and MIME, 3. mail access protocols (POP and IMAP).	sendmail* ntp-time*		
7 (MH)	Mid-semester test Systems of network access network configurations (firewall and DMZ)	shorewall NFS, SMB	Asst 3	Asst 2

Week	Topic	Application	Asst out due
	TERM BREAK (2 weeks)		
8 (MH)	Network administration <ul style="list-style-type: none"> <li>- NAT subnet masking (IP masquerading)</li> <li>- port forwarding</li> <li>- router connections, domains and subnets</li> </ul>	dig traceroute	Project
9 (LH)	Apache web server vs web site hosting <ul style="list-style-type: none"> <li>- search engine positioning &amp; marketing strategies</li> <li>- Apache installation and configuration, SSL, IPsec, htaccess</li> <li>- ISP services, hosted web sites, sub-domains</li> </ul>		
10 (LH)	Introduction to network security <ul style="list-style-type: none"> <li>- threats (Outlook issues, virusses)</li> <li>- policy (e.g. VPNs)</li> <li>- mechanisms (backup, monitoring)</li> </ul>	Apache-common Apache modules php, mySQL	Asst 3
11 (MH)	Unix backup and synchronisation		
12 (all)	Review & project presentations		Project

**Note:** This unit outline is available as 05aUnitOutline.pdf from the MIST824 web page by clicking on **Unit Outline**.

**DO NOT REMOVE  
THE STAPLES**