

PRENTICE COMPUTER CENTRE

THE UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.



NEWSLETTER

N-323

April 1989

CONTENTS

1.	Newsletter Summary	1
2.	PCC Organisational Changes	2
3.	Central Computer Services	4
	IBM Software Agreement	4
	HESC Software for UQVM	4
	UNIX Service	5
	VTEDIT, a new editor for the VAX/VMS System	5
	Apple Laser Printer	6
	Useful New Utilities on UQVAX	7
	Attention UQKL10 IMSL Users	7
4.	Information Technology Services	8
	Software for Departmental VAX and Micro VAX Machines ...	8
	Shareware	9
	Data Management on Personal Computers	9
	Information Concerning Courses	10
5.	Miscellaneous	12
	CSD, CHEM-X and an X-Ray Laboratory	12
	Equipment For Sale	12

Authorized by the Director of the Computer Centre

Phone Numbers for Enquiries

External users may dial direct by prefixing these extension numbers with 377.

Management		Extension
Director – <i>Mr John Noad</i>		2189
Deputy Director – <i>Mr Graham Rees</i>		3288
Manager, Central Computer Services – <i>Mr Allan Woodland</i>		4017
Manager, Network Engineering – <i>Mr Graham Rees</i>		3288
Manager, Finance and Administration – <i>Mr Denis Antonellie</i>		3963
Manager, Information Technology Services – <i>Mr Geoffrey Dengate</i>		3017
Manager, User Liaison and Marketing – <i>Mr Anthony Bird</i>		3944
Central Services HELP Desk (0830–1630) CCHelp for electronic mail		3025
General Enquiries & Course Enrolments		3018
Principal Service Centres		
Personal Computer and Workstation Support Group – <i>Mr Allan Langdon</i>		4233
Contract Programming & Feasibility Studies – <i>Ms Noela Meier</i>		4281
System Status Automatic Answering		3101
Central Systems Accounts (0830–1630) – <i>Mrs Carol Walker/Ms Loretta Davis</i>		2188
Program Librarian – <i>Mr Vern Bawden</i>		4075
Operations		3212
Data Entry – <i>Mrs Ngaire Kelly</i>		3967
Dial-up modem numbers		(300, 1200/75, 2400, 1200 bps – 10 lines) 377 2977 (2400 and 1200 bps – 7 lines) 377 2922
Hardware Problem Reporting		Extension
PC Repairs and Maintenance		3938
Communications Fault Reporting		3938
Terminal and PDP–11 Fault Reporting		3938

Note: After 4.45 pm and at weekends, X3938 is serviced by a message recorder. Users wishing to report PC, terminal, communications and other hardware faults can leave their name, number and fault details.

1. Newsletter Summary

- The Prentice Computer Centre has been reorganised with effect from January 1989. The major functional areas are described.
- A new software agreement with IBM is outlined and a list of specific software products provided. The agreement will result in significant immediate savings to the University.
- A UNIX system is now available for general use by the University community.
- A new and more comprehensive screen editor is now available on UQVAX and UQADM. Some of the features are described.
- The Centre has ordered two postscript compatible Laser Printers both having a resolution of 400bpi but with different speeds and duty cycles. Preliminary information is provided.
- A set of programs enabling the transfer of binary files between systems is described.
- Users are advised that IMSL will not be available on UQKL10 after 14 March 1990.
- Information is provided about the distributed bulletin board, USENET NEWS, and electronic mail charges.
- Digital Equipment Corporation (DEC) have instituted a new software licensing program for Educational Institutions. As a result, DEC software products on departmental systems are now available at significantly reduced charges.
- Advice from the PC Support Group on managing data on Personal Computers is provided, in particular, BACKUP.
- Associate Professor Colin Kennard from the Chemistry Department draws users' attention to two programs available on UQVAX and the pending installation of a four circle diffractometer.

Anthony Bird
ext. 3944

2. PCC Organization Changes

I am sure all our clients are aware that the Information Technology industry is one of constant change. New and innovative hardware and software products are constantly emerging that generally, but not always, provide opportunities for improved productivity. The challenge for IT professionals, and Centres such as PCC, is to select and introduce services, in a timely manner, based on such products and that satisfy the unfulfilled needs of our clients.

While wishing to introduce new services, the Centre must also handle the demand for our existing services in a number of areas:

1. larger and powerful central systems for large number crunching tasks increasing steadily,
2. network based services (electronic mail, access to library databases, access to central high quality printers and the phototypesetter); all from your PC, and
3. development and support of departmental systems, workstations and PCs and associated applications (user education, contract system analysis program/application development, hardware maintenance and repairs, general consulting etc.).

While demand for our services is strong, it is necessary to be cognisant of needs of our clients and to have an organisation that is capable of reacting quickly to the opportunities that present themselves.

Bearing in mind the changing balance of central versus departmental computing, the need to have a responsive organisation, and in these times of financial stringency the need to have a lean and productive team, I have revised the Centre's organisation and reallocated a number of duties. These are outlined below.

DEPUTY DIRECTOR

Mr Graham Rees has been appointed Deputy Director of the Prentice Computer Centre. Because of his specialist knowledge, experience and deep personal interest in many areas of computer communications networks, Graham has also agreed to keep management oversight of the Network Engineering Section.

NETWORK ENGINEERING SECTION

With the rapid growth of the campus communications network in recent years, the Network Engineering Section has had to expand to meet demand and now comprises three functional groups as follows:

- (i) **The Software Engineering Group.** This Group develops and maintains the software necessary to provide basic communications functions as well as higher level network services such as electronic mail.
- (ii) **The Hardware Engineering Group.** This Group is responsible for the installation and maintenance of all equipment, cabling and connections of the network.
- (iii) **The Network Management Group.** The increasing complexity of the network now requires a formal management function to advise users, monitor operations, check security and continuously tune the network.

INFORMATION TECHNOLOGY SERVICES SECTION

Mr Geoffrey Dengate now has responsibility for this new section, that brings together a number of previously separate functional Groups. His brief is to refocus the skills of those Groups to better support the current Information Technology environment of The University and ensure that relevant new technologies are introduced to the campus with appropriate support services already in place.

Mr Dengate now assumes responsibility for five functional groups in this new Information Technology Services Section.

- (i) **Application Development and Programming Services.** This is a contract support group working on user jobs ranging from simple (or complex) PC developments to large mainframe application systems.
- (ii) **Personal Computer and Workstation Services.** This Group provides expert advise, software support and hardware repair services for departmental PCs and workstations.
- (iii) **Typesetting and Desk-Top Publishing.** This Group provides a range of services to support this growing area of Information Technology. Documents as simple as a business card to entire manuscripts can be prepared.
- (iv) **End-User Education.** This Group covers the full range of client education offered by the Centre including both the work of the education officers and courses given by specialist staff from other areas. It is planned to revise and expand the range of courses offered by the Centre during the year.
- (v) **Data Entry.** This service will hopefully be extended by also using OCR technology during 1989.

CENTRAL COMPUTING SERVICES SECTION

Mr Allan Woodland is now responsible for all aspects of Central Computing Services. These cover three major functional areas:

- (i) **Operations.** This group is responsible for running the central mainframes and ancillary equipment and providing a range of services including the HELP DESK.
- (ii) **Large System Software Support.** This Group maintains the operating and applications software on these central machines and supports many of the departmental VAX machines on campus.
- (iii) **Program Library.** A behind the scenes Group, which, following the new software licensing agreements with DEC and IBM (discussed later in the newsletter), is a rapidly expanding area servicing the whole campus.

Mr Woodland has a specific brief to seek out new areas of mainframe application to support computing needs on campus and to extend the range of service to integrate mainframe and PC use via the campus network.

USER LIAISON AND MARKETING

Mr Tony Bird has responsibility for this role. His major duty is to keep the University community informed of the range of facilities, services and expertise available from the Centre and to assist clients in establishing contracts for Centre work in all areas of Information Technology. His role will also include the development, production and maintenance of a range of information on the Centre and its services (including regular newsletters) and keeping a regular liaison with the Centre's clients to provide feedback for the improvement of existing services and the development of new ones.

FINANCE & ADMINISTRATION SECTION

The Finance & Administration Section provides services to other sections of the Centre and to its clients. Mr Denis Antonellie is the Manager.

John Noad
ext. 2189

3. Central Computer Services

IBM SOFTWARE AGREEMENT

An agreement has recently been completed whereby this University becomes a member of IBM's Higher Education Software Consortium (HESC).

In return for a one-time membership fee and an annual fee the University can obtain a variety of mid-range and advanced workstation program products for site-wide use without incurring the normal licensing charges. This will result in significant immediate savings in terms of existing software on UQVM (IBM 3081).

Software obtained under this arrangement is to be used for academic instruction and/or research only; administrative use, commercial research etc are expressly excluded. IBM further require that all software orders, distribution, installation and program services be coordinated through the Prentice Computer Centre.

A list of HESC software currently installed on UQVM or available under this agreement is available on-line on the UQVM computer system via the command INFO HESC. A current list appears below.

Any enquiries should be directed to Vern Bawden on extension 4075.

Allan Woodland
ext. 4017

HESC SOFTWARE FOR UQVM

Available or awaiting installation:

5664-167M System Product-SP and XEDIT; 5664-282Interactive System Productivity Facility Ver 2 for VM (ISPF); 5664-188M/370 Remote Spooling Comms. Subsystem (RSCS); 5664-200Graphical Data Display Manager (GDDM); 5664-318Interactive Productivity Facility (IPF); 5664-323Information/System for VM/370 Ver.1; 5668-011Interactive Instructional Authoring System (IIAS); 5668-012Interactive Instructional Presentation System (IIPS); 5668-806S Fortran Version 2 Compiler, Library, and Interactive Debug; 5668-AAAQuery Management Facility (QMF); 5668-767Pascal/VS Compiler; 5668-813Cross System Product/Apl. Development Ver.1 (CSP/AD); 5668-814Cross System Product/Apl. Execution Ver.1 (CSP/AE); 5688-004Structured Query Language/Data System (SQL/DS); 5734- CB4 OS COBOL Interactive Debug; 5734- LM5OS PL/I Transient Library; 5740- CB1OS/VS COBOL Compiler & Library; 5748- RC1VM/Pass-Through Facility (PVM); 5748- XE4VM Directory Maintenance (DIRMAINT); 5748-XX9Document Composition Facility (DCF -SCRIPT/VS); 5796-PNAVMM/370 Realtime Monitor (SMART)

Ordered:

5664-191 VM MAP; 5664-296 CVIEW; 5664-364 VM/BATCH; 5664-391 ESDE/VM; 5664-392 ESCE/VM; 5668-722 DITTO; 5668-802 GDDM-GKS; 5668-899 APL2; 5668-996 BASIC/VM; 5713-AAH C compiler; 5734-XS2 GPSS; 5798-DFH Fortran Utilities; 5798-DPW Script Math Formula Formatter; 5798-DQZ LISP/VM; 5798-FAL VM Support of TCP/IP

Under consideration:

5664-285 ISPF/PDF; 5664-322 INFO/MGT; 5664-370 Displaywrite/370; 5668-882 SCENAD; 5668-890 FLSF; 5713-AAK VM/SE; 5734-XMC MGRW; 5740-XM3 MPSX; 5767-032 AS; 5785-ABH VM/PROLOG; 5798-DMY VM/FSF

Other:

5664-185 ACRITH; 5664-198 PRINT SERVICE FACILITY/VM; 5664-204 NetView/WM; 5664-280 ACF/VTAM V3 FOR VM; 5664-301 VM/IS BASE; 5664-309 PROFS V2; 5664-315 VM FILE TRANSFER; 5664-327 CMS/SERVER; 5664-336 GDDM-REXX/VM; 5664-376 VM/ISF; 5668-723 GDDM/

IVU; 5668-792 graPHIGS; 5668-801 GDDM/IMD V2; 5668-812 GDDM/PGF V2; 5668-815 Routing Table Generator; 5668-863 Engineering Scientific Subroutine Library (ESSL); 5668-865 Data Communic. Service; 5668-903 Fortran VS Interactive Debug; 5668-905 GDQF; 5668-958 VS Cobol V.2 (Comp./Libr.); 5668-978 GAM/SP Graph Access Method; 5734-PL3 PL/I Optimising Compiler Library; 5748-FO3 Fortran VS Compiler and Library; 5748-XX1 VS Basic Processor & Library; 5785-DER Image Handling Facility; 5798-DJT IPG; 5798-DNC Braille Text; 5798-DTD ICEF2; 5798-DWF Vector Facility Simulator; 5798-DXW IMAS; 5798-DZQ PACS/Material; 5798-PXJ DSL/VS; 5798-RWN PACS/MTS

HESC SOFTWARE FOR RT-PC

5601-037 VS Fortran V.1; 5601-038 VS Pascal V.1; 5601-039 Workstation Host Interface; 5601-062 Microcomputer VRM V2.1; 5601-064 SQL/RT; 5601-071 Distributed Services; 5601-077 X-Windows; 5669-050 Graphic Development Tool Kit; 5669-052 3278/79 Emulation; 5669-053 Inmail/Innet/FTP; 5669-054 IBM RT-PC Fortran-77; 5669-055 IBM RT-PC Pascal; 5669-056 Basic; 5669-057 Co-processor Services; 5669-058 SQL/RT Data Base; 5669-059 Data Management Services; 5669-062 Graphical File System; 5669-063 Plotting; 5669-064 Graphics Terminal Emulation; 5669-167 Personal graPHIGS

Allan Woodland
ext. 4017

UNIX SERVICE

The Prentice Computer Centre now has a UNIX service available. BROLGA, our old VAX 11/780 which previously ran VMS, has been recommissioned as a UNIX host. It runs a supported version of 4.3BSD UNIX and has NFS to allow it to access filesystems on other UNIX systems on campus. Charges for the use of BROLGA's resources are the same as for UQVAX except that, because of speed differences the CPU charge rate is 1/6th of UQVAX. For exact figures please contact the HELP DESK.

All output devices available on UQVAX are available from BROLGA, including line printers, plotters, laser printers, and typesetters.

Major software packages available at this stage are \TeX , troff, netnews. In addition ACSnet provides mail services to the outside world. Packages coming soon include PLOT79 and the Documentors Workbench version 2.0.

Languages available are Fortran 77, Pascal, Franz LISP and C. An archive of old source code news groups is available on line.

Clients requiring accounts on BROLGA should contact the ACCOUNTS DESK.

Greg Lehmann
ext. 2188.

VTEDIT, A NEW EDITOR

A very comprehensive screen editor is available on UQVAX and UQADM for VT100 or later terminals. The Video Terminal Editor, VTEDIT, is based on VAXPTU and implements features of VAXPTU and VAX LSE, such as:

- support for multi file and multi buffer editing;
- support for split screen editing using an optional second window into the same or another text buffer;
- selection of insert and overstrike mode of editing;
- selection of free and bound cursor movement;

- many additional editor functions, like:
 - rectangular cut, paste, and delete operations,
 - insertion of date, time, file and buffer names,
 - case and position control for searches,
 - case conversion and capitalization of words;
- recognition of all match control constructs and access to VAXPTU pattern building constructs;
- journalling the editing session in order to protect against loss of work in case of a crash;
- access to the VMS operating system via DCI, Spawn and Attach commands;
- access to VAXPTU with possibilities to extend the VTEDIT editing interface;
- optional semi automatic, context dependent text formatting providing the following functions:
 - case conversion/automatic case control,
 - automatic indentation,
 - manual correction of indentation,
 - automatic word wrap,
 - automatic line justification,
 - optional automatic insertion of closing parentheses and string delimiters,
 - optional highlighting of the matching opening parenthesis and string delimiter;
- no practical restrictions as to the maximum size of texts to be edited;
- extensive online help;
- access to the features of the Language-Sensitive Editor, VAX LSE.
- optional access to the features of the Source Code Analyzer, VAX SCA.

As VTEDIT is based on compiled VAXPTU code instead of interpreted code, the speed is much higher than that of the EDT editor, and the consumption of CPU time is much less, especially when editing large files of thousands of lines.

The speed and CPU demand of VTEDIT seem to be comparable to those of the EVE editor and to the EDT emulator running on top of VAXTPU, or to the Language-Sensitive Editor VAX LSE running in native mode, i.e. with its original key definitions and without VTEDIT's additional functionality.

A VTEDIT manual is available on-line, but needs an LN03 for the special characters. A master copy is available at the HELP DESK for photocopying.

Information on the VTEDIT command is available via HELP VTEDIT, and <gold> (pf1)H gives both the keyboard layout and full help on all functions.

Ian Burgess
4074

APPLE LASER PRINTER

The Prentice Computer Centre has purchased an Apple Laser Writer II NTX postscript laser printer for the use of our clients. It is connected to UQVAX but users of UQVAX and BROLGA (the Computer Centre's UNIX host) can access it. Access from UQVM is planned.

The cost per sheet has been set at 21 cents for the time being.

In addition to this we have ordered an LPS-40 postscript laser printer from DIGITAL. The quality of its output is slightly less than that of the NTX but it is much faster. It is expected that the cost per sheet will be less than the NTX. Besides its speed and cost advantages the LPS-40 also offers the capability of printing on A3 size paper.

UQVAX access

A new DCL command called PSPRINT has been implemented on UQVAX to allow easy printing of various types of files to the NTX. Help is available for PSPRINT. Briefly, it converts files of different formats into postscript and queues them to the NTX for printing. It will convert ordinary text, HPGL (plotting language), SIXEL (DEC workstation screen dumps), tektronics 4014, and T_EX DVI files to postscript as well as handling postscript files (without any conversion).

BROLGA access

Access from BROLGA is via the normal UNIX queueing system and the command lpr. There is a printer called alw (for Apple Laser Writer) which corresponds to the NTX and will accept postscript files only. Utilities to convert other files to postscript are available in /usr/local/bin and there are manual entries for them. A printer called lps40 will appear when the LPS-40 is installed.

UQVM access (future only)

A command PSPRINT will be made available on the UQVM system to print different sorts of files on the laser printers. INFO will be available when the work is completed and availability will be announced via news. Users wanting to print on the laser printers will need a UQVAX account for charging.

Greg Lehmann
ext. 3022

USEFUL NEW UTILITIES ON UQVAX: UUENCODE AND UUDECODE

UUENCODE is a program which converts binary files to printable characters, so that they can be transferred to systems which cannot correctly receive binary data (usually because the binary data contains control characters which have special interpretation, or the high order bit in each byte is modified by the receiving system). UUDECODE restores files that have been encoded using UUENCODE. Certain symbols need to be defined either interactively, or in your LOGIN.COM file. The online help facility explains how you should go about doing this. Simply issue the command:

```
$ help uuencode  
or $ help uudecode
```

One useful feature is that UUENCODED 'binary' files may be transferred to a colleague via electronic mail. Using the VMS MAIL 'extract' command, he/she could create a copy of the UUENCODED file. This file could then be UUDECODED by your colleague, provided that he/she also had access to these utilities.

These utilities should be used with **CAUTION!** It is very difficult to know exactly what an executable file will do, without being able to look at its source file. If you receive a EXE file via the UUENCODE/UUDECODE process, you must have absolute trust in the person who sends it to you!

Vern Bawden
Program Librarian
ext. 4075

ATTENTION UQKL10 IMSL USERS – FINAL YEAR AVAILABLE

The licence for the IMSL (International Mathematical and Statistical Libraries) Package, has recently been renewed to run on the UQKL10 system for the period 15 March 1989 to 14 March 1990. Due to the **high cost** and **low utilization** of this package on the KL10, it will **NOT** be renewed in 1990.

The IMSL package will remain functional until 14 March 1990, but after this date will be removed from the UQKL10 system. IMSL users should be aware of the options open to them :

- (a) The IMSL Package is currently available on the UQVM (IBM 3081) system, and will continue to be so in the future.
- (b) The NAG (Numerical Analysis Group) Package will remain on the UQKL10 system, and will also be available on the UQVAX and UQVM systems.

Vern Bawden
Program Librarian
ext. 4075

Information Technology Services

SOFTWARE FOR DEPARTMENTAL VAX AND MICRO VAX MACHINES

Owners of VAX, micro VAX and VAX workstation equipment will be pleased to know that Digital Equipment Corporation (Australia) has provided a new software licensing programme for the University which effectively removes the licensing charges for most VAX software. The programme covers all research, teaching and administrative use of the software.

This programme covers all VAX and Micro VAX software fully owned by DEC, including both VMS and ULTRIX, and provides a twelve month right-to-use licence for one dollar (\$1.00) per software product per machine. However software maintenance charges still apply at the current rates. The programme also allows single user licences to be upgraded to eight-user licences for VAX workstations, unlimited licences on other VAXs and provides a 50% discount on media and documentation kits for software supplied under this programme. Documentation only kits carry a 15% discount.

As part of this new licensing arrangement, Digital requires that the Centre coordinate the programme in the University and handle much of the administrative overhead involved.

The Centre will, for its part:

- (a) take orders from Departments and, if the software is not already in the Centre's Library, place orders on DEC in the required minimum quantities.
- (b) distribute software to Departments together with any media and documentation required. The cost of media and documentation will be charged to the Department.
- (c) maintain a register of all Digital software installed on each VAX machine in the University under this programme.
- (d) handle all queries on VAX software problems, co-ordinating all calls to Digital's Customer Support Centre.

There will be a standard charge of \$50 per software product per machine to cover the ordering, distribution and registering of the software. This charge will also be levied for new versions and upgrades.

Software support and maintenance work, as well as other VAX services such as software installation and VAX facility management service will be charged at the normal small job rates.

Further details of the programme and ordering requirements can be obtained from Vern Bawden (ext. 4075).

J.D. Noad
Director

SHAREWARE

The very latest CD-ROM has just arrived at the PC Support Group. Anyone wishing to peruse the Shareware magazines and take diskettes from the CD-ROM @ \$2.00 per disk may do so.

Alex Waskiw
ext. 4018

DATA MANAGEMENT ON PERSONAL COMPUTERS

Mainframe computer users have their data looked after for them by the operators of the system on which they work. This is standard practice on the mainframes and in fact this is one major advantage of using the big machines. With reference to the PCC, every day the files that have been updated or modified on the mainframe system are backed up and kept for a week. Every week the entire system (all files, i.e. data and programs) is backed up and kept for a month. Yet another entire backup of the system is carried out at the end of each semester, and that is kept for three years! This type of backup procedure for the mainframe users is transparent and consistent ... the user does not have to know or do anything unless, of course, data is deleted accidentally or the account is left to expire and the data therefore becomes inaccessible.

Personal computer users, however, do not have such transparent, consistent backup and their data security and integrity is left totally to themselves. This sounds , and can be, dangerous.

I have met quite a few users who for one reason or other have not been observing the 11th commandment ...

THOU SHALT BACKUP

I could try and scare the reader by citing a couple of examples of data loss such as "no backup on a system over the last three years" or "I wrote my entire thesis on the hard disk ... then it crashed", but I'm not into scare tactics so I'll just tell you how I think you ought to maintain your data on a "stand alone" personal computer.

Firstly, users who do not have hard disks on their PCs need to realise that their floppies can become corrupt and therefore any important data needs to be duplicated. This can be achieved simply by using the DOS copy or diskcopy command. Of course, those users would never use their original application or program diskette would they? They would always use a copy of the original just in case they delete *.* (all the files), or format the wrong diskette! So that's dual floppy systems.

The real heartache stories of data loss concern users of systems with hard disks. These fortunate and privileged users have the great advantage over their dual floppy counterparts of being able to run their speller over a word processing document without performing the 'ol disk shuffle. But when the time comes to store or save away their perfectly spelt document, putting it away in their data directory on the C: drive appears so safe and secure that it seems useless to copy it to a floppy as well; besides it takes too much time and/or perhaps they don't really know how. If the time it takes to copy their file(s) to a floppy at the end of the day is too long compared to the time it takes to type a hundred page document ... we'll say no more. As for "I don't know how" you had better find out.

So let's lay down some rules to follow in our data care exercise:

1. Once your hard disk system is configured, i.e. the applications have been set up for your monitor/printer/personal preference and have been placed in their respective directories, the entire system should have a "snapshot" taken. In other words a complete backup of the system should be carried out. There are a couple of ways in which this can be done:
 - (a) A tape backup unit may be available to you.
 - (b) Use the DOS backup command.

2. Once the entire system has been backed up in this way, the data is the only thing that concerns us. Now, before this idea can be effective the directory structure on the hard disk needs attention. "Files" or "data" sub-directories underneath the application directories need to be set up and utilised. The invocation of the applications should, by default, start the applications from these files/data directories so that the data files are saved there by default. Alternatively the applications may be able to be configured to save their data files into a specific directory. Either way, the desirable outcome is that any files that are created are stored in a directory other than the application directory.

Now these data sub-directories are the only areas on the hard disks that are going to change and are therefore the only areas that will require looking after. Most simply, the files that are created each day can be copied from within the application being used or the DOS copy command can be used.

3. The frequency of backup is the last issue we need address. Whether your data needs to be backed up every day, bi-weekly or weekly depends upon how prolifically one is creating numbers and/or text. If one is at the keyboard for a couple of hours a day then the backup would be desirable daily. If the user only inputs a couple of hours a week then perhaps weekly backups would suffice. The user has to measure the amount of work and the importance of that work to determine the frequency of backup. (Please note the term backup is being substituted for "copied").

Overall, the most important thing is not to trust the hard disk or a floppy to faithfully reproduce your data when called upon. In this age of computer viruses one might not trust the data integrity from a digital storage medium at all and some users believe hard copy is the ultimate data protection. However, I believe making copies of your data files, floppy to floppy or hard disk to floppy, and perhaps two copies stored in different locations is quite adequate. Another consideration to make when backing up/copying data files is whether or not the data is worth keeping at all, i.e. will you ever want to look at this file again?

Whatever the method you choose ...

BACKUP!

Alex Waskiw
ext. 4018

INFORMATION CONCERNING COURSES

Below is the schedule of courses to be offered for the period April-June 1989.

April

‡	Introduction to WORDPERFECT (V5.0)	April 3-6	1-4 pm
†	Introduction to VAX8550 (VAX/VMS)	April 4-7	9-12 am
#	Introduction to UNIX	April 11-13	9-12 am
‡	WORDPERFECT V4.2 → V5.0 Conversion	April 11-12	1-4 pm
‡	Introduction to DBASE III	April 12-14	9-12 am
†	Introduction to Datatrieve/RDB (see note)	April 17-21	9-12 am
‡	Introduction to PC/MSDOS	April 18-20	9-12 am
‡	PC Overview	April 26	9-12 am
†•	Using MAIL on the Network and Beyond	April 27	1-4 pm

May

†	Introduction to DBASE III	May 2-4	9-12 am
•	Introduction to IBM3081 (CP/CMS)	May 2-5	1-4 pm
†	Introduction to WORDPERFECT V5.0	May 9-12	9-12 am
†•	Network PRINT-ing Facilities	May 10	1-4 pm
†•	Introduction to FORTRAN Programming	May 15-19	9-12 + 1-4 pm
†	WORDPERFECT V4.2 → V5.0 Conversion	May 16-17	9-12 am
†	Advanced PC/MSDOS	May 22-23	9-12 am
•	Introduction to EXEC files with REXX	May 24	1-4 pm
†	Introduction to PC/MSDOS	May 29-31	9-12 am
†	Introduction to VAX8550 (VAX/VMS)	May 30-June 1	1-4 pm

June

†	Introduction to BASIC Programming	June 5-9	9-12 am
•	Introduction to SAS	June 5-9	9-12 am
#	Introduction to UNIX	June 13-15	1-4 pm
†•	Introduction to SPSS-X	June 19-23	1-4 pm
•	Introduction to IBM3081 (CP/CMS)	June 27-30	9-12 am

Key:

- denotes IBM3081 course
- † denotes VAX8550 course
- †• denotes availability on both VAX and IBM - specify on enrolment
- # denotes VAX 11/780 course
- † denotes PC course

Notes:

1. The SAS course is conducted on the IBM3081 system, but covers its use on PC's.
2. It is expected that users attending courses on specific packages (SQL, SAS, SPSS-X, DBASE III, etc) will be familiar with keyboard usage, file-management and editing on the relevant machine (IBM, VAX or PC).

Attendance at such courses without this background gives rise to many problems, as all courses are hands-on. Introductory courses are given frequently to allow familiarity with the fundamentals before attending courses on particular applications packages.

3. All courses will be held in the Centre's teaching rooms near the Physics Annexe - the mainframe courses in Course Room 1 and the microcomputer courses in Course Room 2.
4. Staff, postgraduate students and kit-owners are admitted free to courses. The charge is \$10.00 per half-day session for other internal users;
\$25.00 per half-day session for affiliated users;
and \$60.00 per half-day session for external users.
5. Enrolments for all courses may be made by phoning ext. 3018 (0830-1630).

Barry Maher/Nick Evans
ext. 3021

5. Miscellaneous

CSD, CHEMX, AND X-RAY LABORATORY

CSD, Cambridge Structural Data Base, is available on UQVAX through Colin Kennard, CHKENNARD, Chemistry Department ext. 3296. 63000 organic structures can be searched very rapidly, and those selected can be drawn up on a graphics screen, and comparative calculations carried out.

CHEMX, a chemical model building program is also available on UQVAX. More information for The University of Queensland users may be obtained, once again, from Colin. It is ideal for those involved in synthesis of new compounds.

X-Ray Laboratory: In the next few months, an Enraf Nonius CAD4 four circle diffractometer will be installed in Room 616, Department of Chemistry, The University of Queensland. This device will enable molecular structures to be determined quite rapidly (1-10 days) of compounds (in the form of single crystals). For more information please contact Colin Kennard, CHKENNARD, ext. 3296.

If required, I will be available to give an one hour seminar talk on all three aspects dealt with above.

Colin Kennard
ext. 3296

EQUIPMENT FOR SALE

Apple Iic personal computer, Apple mono monitor, Apple Unidisk 3.5 ext. 800K drive, 1 meg RAM expansion card, Zip Chip fast CPU, Brother EP-44 personal printer (with cable), Appleworks 2.0 software with Pinpoint accessories and spellchecker, in very good condition \$4200.00.

Phone David ext. 3626 or 371-5489 after hours.

David Myatt
ext. 3626