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acs academic computing services Newsletter

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March, 1991

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SAS 6.06 Default on VX and VZ

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SAS 6.06 will become the default version of SAS on March 24, replacing SAS 5.18. You still run SAS by typing

\$ SAS *inputfile*.SAS

As before, your logfile will be on *inputfile*.LOG and your listing file on *inputfile*.LIS. SAS 5.18 will still be available by typing

\$ SAS5

before invoking SAS. Subsequent calls to SAS will continue to run SAS 5.18. If you wish to return to SAS 6.06, you can type

\$ SAS6

SAS 6.06 is a substantial rewrite of SAS 5.18. This new version contains numerous improvements and differences, which is one reason we will be running both versions for a while.

SAS 6.06 Improvements in Data Management

In Version 6 SAS has added two new major concepts to its data management scheme. The first is the "Multiple Engine Architecture," which means that SAS now provides several "engines" to read and write different types of data sets. As a practical matter, this enables SAS to:

- Read SPSS and BMDP system files directly.
- Use SQL ("Structured Query Language") to retrieve and update SAS data sets. SQL is a standardized, widely used, database access language.

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acs

Academic Computing Services

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- Allow the creation of compressed SAS data sets. Compressed data sets can take substantially less disk space and fewer I/O operations to read and write, but greater CPU time to access.

The second concept is indexing. SAS datasets can now be indexed by one or more “key variables.” This means that subsets of the data can be rapidly accessed without the need for resorting the data each time. Indices can be created at any time with the **PROC DATASETS Index Create** statement.

- All **PROC**s now permit a **WHERE** statement. This statement allows you to select only certain observations for analysis without using a subsetting **DATA** step. That is

```
PROC CORR;  
  WHERE SEX EQ 'F'; /* runs correlations only for data on the women.*/
```

SEX need not be an indexed variable.

Differences Due to Multiple Engine Architecture In SAS6.06

Because of the multiple engine architecture, the SAS data set is now kept in an entirely different format. SAS 6 can read SAS 5 data sets; SAS 5 *cannot read* SAS 6 data sets. They are easy to tell apart. SAS 5 data sets are stored as *dataset.SSD*; SAS 6 data sets are stored as *dataset.SASEB\$DATA*. (I have no idea why.)

In addition, SAS no longer creates **EXPORT** files to be used for moving SAS data sets between sites. It is now necessary to specify a file as an **XPORT** library, and then use **PROC COPY** to move it there. For instance:

```
LIBNAME DATASET '[.SAS6DATA]';      * contains SAS 6 data sets;  
LIBNAME TRANS XPORT 'MYFILE.TRANS'; * will contain SAS transport file;  
COPY IN=DATASET OUT=TRANS;         * takes SAS dataset MYFILE.SASEB$DATA;  
SELECT=MYFILE;                     * and writes a Transport file on  
                                   MYFILE.TRANS;
```

IMPORT and **EXPORT** are no longer options in **PROC COPY**. This is not an improvement.

Other Major Changes and Improvements

SAS 6 contains two new statistical procedures:

- **PROC LOGISTIC** performs logistic regression, including stepwise model fitting forward, backward, and stepwise entry of variables.

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SAS continued from page 43

- **PROC CALIS** provides an analysis of covariance structures, structural linear equations and path analysis. It is functionally similar to LISREL or EQS.

SAS has added numerous new features to existing procedures, which space precludes me from enumerating here. In addition:

- PostScript support for SAS/Graph is improved.
- SAS/IML has many new functions and improved (incompatible) graphics.
- **PROC EXPAND** has been added to SAS/ETS. **EXPAND** can convert time series from one sampling interval to another and interpolate missing values.

WARNING: **PROC NEIGHBOR** has been folded into **DISCRIM**. The **RSQUARE** and **STEPWISE** procedures are likewise now part of **PROC REG**. These changes were long overdue.

Other Changes

- For the first time the SAS Macro language is available under VMS. This allows multiple SAS statements and commands to be packaged into modules that may be referenced by name. This is useful in SAS programs that contain repetitive or frequently used command sequences.
- Temporary (implicit) arrays are supported for the first time under VMS. Similarly, the **DO OVER** statement which loops through an implicit array, has been implemented.
- Several procedures can be run interactively. These include procedures **ANOVA**, **CATMOD**, **GLM**, **PLAN**, and **REG**.

- **PROC SPELL** is a new spell checker that you can use on SAS catalogs or external files.

New Interactive Front End

If you just type

§ **SAS**

at the § prompt, you will be placed in the SAS Display Manager. This is similar to the SAS/PC interface, and allows you to use SAS interactively.

The Display Manger provides three windows (a Program window, a Log window, and an Output window), and an editor very like XEDIT under CMS. (This is not to be confused with XEDIT on our CYBER CA.)

Since few VAX users are familiar with CMS's editor, you can issue a TPU command within the Program window that will allow you to enter your program with the EVE editor. (But it provides you the EDT editor keypad. I have no idea why.)

For short programs, the Display Manager can be a time-efficient way to debug and run your SAS programs. Nonetheless, a few caveats:

- Display Manager easily gets confused and hangs.
- There is no way I have found to add page breaks to your output file.
- The Display Manager will not write your output to a file whose name already exists. Apparently it is not conversant with VMS version numbers.

I'll publish an article on the SAS Display Manager in a future newsletter. But probably not until some of the bugs have been fixed. The Display Manager is partially documented in the *SAS Language Reference*, and partially in the *SAS Companion for the VMS Environment*, both mentioned below.

Documentation

Documentation for SAS 6.06 is a disaster. Among the manuals that you might not be able to live without include:

SAS Language Reference, first edition. Describes the SAS Language. This might come to be recognized as the worst written reference manual of the 90s. SAS Institute wrote over 1000 pages of reference manual without defining a single PROC, or anywhere providing a summary of statements permitted in the Data step.

SAS Procedures Guide, Version 6, third edition. Describes the utility SAS procedures. The *Procedures Guide*, along with the aforementioned Language Reference, replaces the *SAS User's Guide: Basics*, in Version 5.

SAS/STAT User's Guide, Vols 1 and 2, Version 6, fourth edition. SAS statistical procedures. This replaces the *SAS User's Guide: Statistics*.

SAS Companion for the VMS Environment, Version 6, first edition. How to run SAS under VMS.

Other manuals you might need include:

SAS/Graph Software, 2 volumes, Version 6, first edition.

SAS/ETS User's Guide, Version 6, first edition.

SAS/IML User's Guide, Version 6, first edition.

SAS Guide to the SQL Procedure, Version 6, first edition.

SAS Guide to Macro Processing, Version 6, second edition. How to create and use macros.

SAS Technical Report P-204: Changes and Enhancements. How SAS changed between SAS 5.18 and SAS 6.06. Just the highlights and references, in a mere 119 pages.

SAS Technical Report P-195, Transporting SAS Files between Host Systems. How to create and use SAS Transport files, described in 167 pages. And it used to be so easy.

There are many more.

All of these manuals are published by SAS Institute in Cary, North Carolina, and are copyrighted 1990. (It is no accident that SAS is the largest publisher in North Carolina.) You can visit these manuals at the Computing Information Center, Room 1, in the depths of Nicholson Hall.

Macintosh Allegro Common Lisp: New Version Replaces ObjectLisp with CLOS

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Apple will soon release Allegro Common Lisp Version 2.0. In this release ObjectLisp will be replaced by CLOS, the Common Lisp Object System. All functions of the system and user interfaces in this version will also be implemented in CLOS. (For example, windows and dialog boxes, which have been ObjectLisp objects, will now be CLOS objects.)

Apple will also provide the programmable FRED editor code that converts your source code files to the new CLOS system; there is an appendix in the Version 2.0 manual that describes this conversion process. According to Alice Hartley of Apple, this conversion process is currently in alpha test: "Some testers have said the conversion is no picnic," she says, "but none have complained bitterly." No further information is available at this time.

There is currently a portable version of CLOS (PCL) available for Allegro Common Lisp. This version of PCL implements the CLOS standard specification as defined in Chapter 28 of Guy L. Steele's 1990 volume *Common Lisp: The Language*, second edition (Digital Press). It does not include the Apple-specific system and user interface functions. You can get a copy of the May Day Revision 2 PCL release at no cost from the Special Projects Group, 1 Nicholson Hall (625-8332). A good CLOS tutorial is Sonya E. Keene's 1989 volume, *Object-oriented Programming in Common Lisp: A Programmer's Guide to CLOS* (Addison-Wesley).

The current version of Allegro Common Lisp (Version 1.3.2) is also missing the Loop Facility (see Steele, Chapter 26). This facility greatly extends the loop macro by adding capabilities such as controlling the direction of iteration, and controlling how values are accumulated. A portable version of this is also available from the Special Projects Group at no cost.

On Password Security

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Choosing a good password for a computer account requires some thought. Some passwords are easy to guess; naturally, you should avoid these.

Easily guessed passwords may enable someone to gain unauthorized access to your account. If somebody guesses your password, they can do anything with your account that you can do. They can read your mail, delete or modify files, etc. They could even change the password, preventing you from accessing your own account!

When choosing a password, follow the guidelines outlined in this article to protect your account.

Choosing a Password

When selecting a password, you should try to use something that is easy to remember so that it doesn't have to be written down. At the same time, you should avoid passwords that might be easily guessed.

Some of the easiest passwords to guess are user names, personal names, and other personal information that is publicly available. Never use your user name as your password—it's too easily guessed. People who know you can easily guess passwords based on user names or personal names. Avoid passwords based on other personal information (for example, phone numbers and addresses), available in sources like the phone book. These types of passwords are the first guesses that an unsophisticated password cracker would attempt.

Any common English word is a bad choice for a password. A sophisticated password cracker will use an on-line dictionary as input to a password-guessing program. To illustrate this, we could look at all the seven-character words in an on-line dictionary—we might expect to find no more than 50,000 words. Most users tend to use

passwords from this limited set of character combinations, so that a program could guess many user's passwords in a relatively short time. Looking at the set of seven-character strings formed from random lowercase characters, we note that the "alphabet" used to form a password consists of 26 possible characters. Therefore, the number of seven-character strings possible is 26^7 or over 8 billion combinations. Increasing the alphabet used in password selection to 36 possibilities by including digits 0 through 9 with the lowercase letters, we see that there are 36^7 or over 78 billion combinations.

Because there are many more possible combinations, random character strings are a better choice for a password than actual words or names, and it is especially important to use a "rich" alphabet for a password on a UNIX system. The limitations to passwords on the UX and other ACS systems will be mentioned later.

A good technique for forming easy-to-remember passwords that are hard to guess is to take a common phrase and use the first character of each word in the phrase. For example, an easy-to-remember phrase might be: "We the people of the United States of America" and the resulting password would be `wtpotusoa`. A numeric digit could be added to the password somewhere to create a combination that is even harder to guess. One way to add numbers to a password derived from a phrase would be to replace certain words with numeric sound-alikes: *for*, *fore*, and *four* could be replaced by the number 4 and *to*, *too*, and *two* by the number 2. Using this scheme, the phrase "Four score and seven years ago" yields `4sa7ya` as a password.

Change Your Password Regularly

It is important to change your password regularly—several times a year. The longer you wait to change your password, the more you increase the chances that someone will guess your password. If you are not going to use your

account for an extended period of time (several months or more), it might be a good idea to have the account closed or deactivated by the ACS accounting department. (Closing an account causes your current files to be deleted. Deactivating retains the files.)

How to Change Your Password

Use the following commands to change your password on ACS systems.

On the UX system, a valid password may be no more than 8 characters (extra characters are ignored) and no fewer than 4 characters if a "sufficiently rich alphabet" (i.e., combining upper- and lowercase characters) is used, or no less than 6 characters for a monospace password. The password may contain any printable character and some control characters. The command to change your password is:

```
passwd
```

On the VX system, a valid password is an alphanumeric string between 7 and 31 characters. The password may also contain the characters `_` and `$`. A password may not be a common English word; the system does not allow them. The command to change your password is:

```
$ SET PASSWORD
```

The VMS system will also generate a new password for you—use the `/GENERATE` qualifier on the `SET PASSWORD` command.

On the CA system, a valid password is an alphanumeric string of 4 to 7 characters. Upper- and lowercase characters are considered the same. The command to change your password is:

```
PASSWOR
```

More on the Network File Server

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In the last newsletter we announced our Network File Server that uses erasable optical disks to store up to twenty gigabytes of on-line data. The server is already available to UX users, as well as PC and Macintosh users that are currently using UX for storing files through AppleShare. To maintain server performance, we are now providing two types of access to the server: active and backup.

server to save permanent file costs. Backup usage is for files placed on the server for backup and are usually not accessed for long periods of time. An example of backup usage would be a PC or Macintosh user using Appleshare to store disk backups on UX. This user will only access the backup to restore lost files. A UX user can utilize both types of server access. See the box on the facing page for details.

Selecting File Server Access

Access to the file server is based on usage. Active usage is for files accessed on a regular basis and placed on the

For More Information

If you want more information about the file server, please contact Dave Bianchi at 626-1827.

MRDC Open House

The Machine Readable Data Center (MRDC) is part of the Humphrey Information and Data Center (HIDC), a cooperative venture between ACS and the University Libraries to provide easy access to various data collections such as the U.S. census, the ag census, and the manufacturing census.

There will be an open house for the MRDC at 50 Humphrey Center, Tuesday, March 19, 3-4:30 pm. Refreshments will be provided by the University Libraries. Everyone is welcome.

Using the Network File Server

Users select the type of server access using the `fsmkdir(1)` command. The format of the `fsmkdir` command is:

```
fsmkdir server-name
```

By default, the command selects active access and a server-name of `fs1`. An example:

```
ux% pwd                                {Prints working directory.}
/home/staff/djb
ux% fsmkdir                             {Makes directory on file server.}
/fs1/staff/djb
```

To select backup access, use the server-name `backup`:

```
ux% pwd                                {Prints working directory.}
/home/staff/djb
ux% fsmkdir backup                      {Makes directory on file server.}
/backup/staff/djb
```

Note that the path displayed by the `fsmkdir` command is different for each type of access. Once the `fsmkdir` command has been executed for each type of access, a UX user can store files in that file server directory. Using the above example:

```
ux% pwd                                {Prints working directory.}
/home/staff/djb
ux% cp largefile /fs1/staff/djb        {Copy working file to file server.}
ux% cp backupfile /backup/staff/djb    {Copy backup file to file server.}
```

Type `man fsmkdir` for more information about the `fsmkdir` command.

File Server Access for PC and Macintosh users

PC or Macintosh users can use the directory created by `fsmkdir` as an AppleShare volume by using it in their `~/afpvols` (or `~/afpvols`) file. Using the above example, the `afpvols` file might look like:

```
/backup/staff/djb:File_Server
```

Using `chooser` on a Macintosh would display `File_Server` as an available volume on the ACS-ENCORE AppleShare server.

Beginning Our Second Decade: 1976-1980

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As we continue observing our twenty-fifth year of publication, we continue displaying that unmistakable symptom of advancing age—reminiscing about old times. This month we review another portion of our newsletter's history, from 1976 through 1980, a period we might call a prelude to change.

In the issues from that period, we find our department (then called the University Computing Center, UCC) continuing much as it had in the previous decade. Computing at UCC was still dominated by Control Data CYBER machines and applications in mathematics, the sciences, and the social sciences, and this is reflected in the services we continued to offer. But there were signs of technological change on the horizon—for example, microcomputers and supercomputers made their first appearances at the University during this period—and by the end of 1980, we were offering a number of new services in response to this change.

We Change Our Name—or Do We?

As we recalled last month, this newsletter began as the Numerical Analysis Center's *Notes and Comments*, later the UCC *Notes and Comments*. In September of 1973, we renamed our newsletter again, and it became simply the *UCC Newsletter* (Figure 1, on the following page). That is the name it retained throughout the period we're reviewing here—except for a two-month period in 1976; in August of that year our newsletter suddenly became the *Network News* (Figure 2, on page 53). We asked our readers to comment on our new name, they did, and in October '76 we were once again the *UCC Newsletter*.

You might think we'd learned our lesson about name changes that time, but *noooooo* . . .

The Mainframe Context: Our CYBER Services Grow

By late 1977, our CYBER 74 research machine couldn't meet the ever-growing demand in research computing, including interactive and batch processing and data base management systems. That year, demand for research computing reached levels that had previously been predicted for 1981. To meet these demands, UCC purchased an additional machine, a Control Data CYBER 172, in mid-1978 to serve as our primary machine for interactive research computing.

In 1979, we also replaced our CYBER 6400 instructional system with a CDC CYBER 720 to meet the increased need for instructional computing. As a result, UCC's configuration in 1979 consisted of a CYBER 720 for instructional computing, a CYBER 74 configured primarily for batch research computing, and a CYBER 172 for interactive research computing. All three systems ran the NOS operating system.

During the 1970s, UCC made extensive modifications to the standard Control Data KRONOS and NOS operating systems, including additional language processors, mathematical packages and libraries, text-processing and graphics software, and data base management systems. We acquired much of this software from software vendors, but we also developed a large proportion of it ourselves. Software products produced by UCC staff were distributed to many CYBER computer sites around the world; the most notable were the XEDIT text editor, the MNF and M77 FORTRAN compilers, and a standard Pascal compiler, library, and software tool set.

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UNIVERSITY COMPUTER CENTER

227 EXPERIMENTAL ENGINEERING
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA 55455

UCC NEWSLETTER

VOLUME 7 NUMBER 9

SEPTEMBER, 1973

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BRIEF NOTES

SEMINAR

An Immigration Seminar will be held on Thursday, September 20th from 1:00 - 5:00 PM in Room 120 Blegen Hall (West Bank). This seminar is designed to introduce UCC computing resources to all new faculty members and graduate students and other prospective new users. We will present basic information on available computers, consulting procedures, software, instructional programs, documentation (present and future plans), costs, and scheduling.

For more information call Thea D. Rodge, 373-4599.

SPSS USERS

A listing of additional SPSS error messages has been compiled and is now available from the UCC librarian, Room 229 ExpEng.

PROGRAM TROUBLE REPORTS

A listing of current Program Trouble Reports (PTRs) is now available through the consultants in Room 140 ExpEng and at Lauderdale or from the PTR Coordinator in Room 203 ExpEng. Items on this list may be of an informative nature as well as errors which need attention.

If you wish to report a problem with a program, please fill out the Program Trouble Report form giving a good description and an example. Forms are available at the consultant's desk or in Room 227 ExpEng.

Figure 1: UCC Newsletter

Beginning continued from page 50

Micros and Supercomputers

Microcomputing at the University began at what now seems a remarkably slow pace. In December 1977, we announced a “substantial long-term project to evaluate microprocessor hardware and the available operating systems and processors for microprocessors.” By January 1978, UCC had purchased seven Terak microcomputers (which some of our *older* readers probably remember—don’t you?) to evaluate small systems in research and instruction.

By the end of ‘78 at least 30 Teraks were in use on campus. (Money was one obstacle in acquiring more systems faster; Teraks cost from \$5500 to \$7000 each in 1978 dollars, including the educational discount.) These systems typically came with 24K of ROM, less than 100K RAM and two eight-inch floppy disks that could contain up to 250K bytes of information.

Shortly thereafter we began offering a variety of services in support of microcomputing. We offered the first short course on Teraks in January ‘79, and included the Apple II in our April short course schedule. We also began offering limited consulting on the Terak and the Apple II in 1979. We published special newsletter issues dedicated to microcomputing in May and November ‘79 (including articles by Michael Dunham on books and other references about microcomputers). In March ‘79 we received approval to open a University computer store (one of first in the nation), that sold floppy disks and other micro accessories, along with punch cards, mainframe documentation, and other computing supplies.

In November 1979 of that year, we began our Micro-computer Help-line, available four hours weekdays, to answer questions about Teraks and Apple IIs. By July 1980, the Micro Help-line was answering 100 calls a month.

Supercomputing began at the U somewhat later. In August 1979 UCC offered users computing services on a CRAY-1 operated by a private (and expensive) computer center; the user paid all costs.

Humanities Computing

Gradually researchers were finding ways to use computers in “non-traditional” kinds of computing research. A number of faculty and students had been using computers in humanities research before 1976, but beginning in 1979 there is a noticeable increase in the number of articles on humanities computing in the newsletter. In January we published a survey in the *UCC Newsletter*, asking readers to provide us with information about their current projects in computer-assisted humanities research. We began a consulting service in humanities computing in February. In May we introduced Terak software for teaching classical Greek. Other languages followed.

Into the Eighties and toward Change

As we concluded 1980, UCC was still very much what it had always been, a CYBER mainframe shop specializing in computing for research and instruction. We’d added new software and technology to support that traditional role, and we augmented that role in small ways, with limited support for micros, supercomputers, and new applications for computers. Still, our traditional services remained essentially unchanged and unchallenged—for the time being.

We didn’t recognize them yet, but by the end of this period the signs of drastic change in academic computing were already visible. In the next five years the importance of these signs would become clear, as we’ll see in the last installment of this informal review.

networknews

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KRONOS

Several user test periods are coming up in August. As announced in the July newsletter (and again in this one), the new MERITSS operating system will be up for testing on August 8 and 15 from Noon to 4:00 PM. These test periods are free; we welcome your help in checking out the new system.

In addition to the MERITSS free test periods, we will also be offering free time to users to test the modified Cyber 74 operating system. Exact schedules have not yet been determined but they will probably be the 8th and 15th of August (Sunday); exact times and dates will be announced in a SYSNOTE.

Perhaps this would be a good place to reiterate our policies as regards changes in the user environment:

- (1) We announce and document all changes in advance of the change.
- (2) Whenever possible, we make changes during slack periods, for example, during quarter break when we cause no disruption to classroom users.
- (3) We make every effort to permit user testing before a change is made.

MNE

--by J. Mundstock & L. Liddiard

The following changes have been made to the MNF coded I/O routines:

- (1) The new routines no longer convert 00 codes to blanks on the A and R format output. This allows colons to be printed at a timesharing terminal.
- (2) Addition of the = in the format. The = can appear anywhere a number appears in a format. It will take the next list item
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apologies

The recent MNF changes (see column 1) created some problems for a number of users since we failed to follow our normal policy of announcing and documenting changes in advance.

We apologize for the disruptions we caused and promise to lighten our procedures so that this sort of unexpected change does not occur again.

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
 \$
 \$ BE SURE TO USE THIS \$
 \$ CATLIST,PN=PF01. \$
 \$
 \$ NOW AND THEN IF YOU \$
 \$ HAVE EVER USED THIS \$
 \$ DEVICE, IF YOU \$
 \$
 \$ FORGET A LARGE FILE \$
 \$ ON A SPECIAL DEVICE, \$
 \$ YOUR BILL COULD BE \$
 \$ QUITE SURPRISING. \$
 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

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373-4548 Account Clerk
 373-4360 Administrative Offices
 376-3963 Educational Services
 373-4596 ExpEng I/O station
 376-7067 Field Engineering
 373-2521 Keypunch Supervisor
 373-4940 Lauderdale Shift Coordinato
 373-4995 Microfilm Operator
 373-5907 Program Librarian
 373-4994 Recorded message: ExpEng I/
 373-1798 Recorded message: MERITSS
 373-7744 Reference Room
 376-3963 RJE Services (R. Franta)
 373-5754 RJE Services (G. Jensen)
 373-9751 Secretary - Graphics Lab
 373-4912 Secretary - Lauderdale
 373-4995 Tape Librarian
 376-5592 Telephone consulting: MIRJE
 373-5753 Telephone consulting: MERIT
 373-4599 User Services (T. Modge)
 373-4921 User's Room; Lauderdale
 373-3608 West Bank Computer Center

Figure 2: Network News—It seemed like a good idea.

Free Central System Computing Courses Spring 1991

Offered by St. Paul Computing Services (SPCS), Academic Computing Services (ACS),
and Health Sciences Computing Services (HSCS)

Our courses teach you the operating systems and software on central system computers, large systems used by many people at the same time. These courses do not cover microcomputer software unless otherwise indicated in the following descriptions.

How to Register

To register call 626-0032, 8:00 am to noon and 1:00 to 4:30 pm, Monday through Friday.

Registration is located at the Computing Information Center, 1 Nicholson Hall. Mail registrations are accepted or you can also register by electronic mail—write to classes@umnacvx or classes@vx.acs.umn.edu. Include a day-time phone number.

Please call to cancel if you later decide not to attend, so we know how many to expect. Deadline for registering is 4:30 pm on the last working day before the class begins.

General Courses

Introduction to Computing (ACS)

Monday, April 1, 2:30-4:30 pm. Basic terms and concepts in central system computing for the beginner.

User Orientation (SPCS)

Tuesday, April 2, 10:30-11:30 am. Overview of SPCS's hardware, software, and services.

Operating Systems

VAX/VMS for Beginners (ACS)

Wednesday and Monday, April 3-8, 2:30-4:30 pm. For those who have never used a central system before. Demonstration of basic VMS commands, with opportunities for practice and questions.

UNIX Overview (ACS)

Section 1: Thursday, April 4, 2:30-5 pm. Section 2: Monday, April 29, 2:30-5 pm. A beginning look at the UNIX operating system: structure, commands, utilities, and editing.

CMS Introduction (SPCS)

Thursday, April 4 and Friday, April 5, 9:30-11:30 am. Hands-on training in CMS, the operating system on the SPCS and Carlson School of Management machines.

CMS BATCH (SPCS)

Monday, April 15, 9:30-11:30 am. Why, when, and how to submit programs to BATCH. You must know the CMS operating system.

Introduction to VAX/VMS Operating System (ACS)

Tuesday and Thursday, April 16-25, 2:30-4:30 pm. An extensive introduction to the VMS operating system, including files, editing, mail, DCL commands, and procedures.

vi: UNIX Editor (ACS)

Section 1: Monday, April 15, 2:30-5 pm. Section 2: Wednesday, May 1, 2:30-5 pm. Editing files in UNIX in line mode (ex) or screen mode (vi): commands and setup. You must know the UNIX operating system.

CMS Tapes (SPCS)

Wednesday, April 24, 9:30-11:30 am. Specifying, reading, and writing tapes. You must know the CMS operating system.

CMS Utilities (SPCS)

Wednesday, April 10, 9:30-11:30 am. How to use CMS utilities for system enhancement, password and disk space management, and other functions.

Magnetics Tapes on CA and VX (ACS)

Tuesday and Thursday, May 14-23, 2:30-4:30 pm. Learn to backup your files to tape on the CYBER CA and VAX VX mainframes.

Introduction to NOS/VE Part 1 (HSCS)

Section 1: Thursday, April 11, 10:00 am-noon. Section 2: Wednesday, May 8, 2-4 pm. Connecting to NOS/VE, entering commands, managing files, obtaining output, and on-line help.

Introduction to NOS/VE Part 2 (HSCS)

Section 1: Thursday, April 18, 10 am-noon. Section 2: Wednesday, May 15, 2-4 pm. Batch jobs, printing options, job/command control, special files, and file transfers on the NOS/VE operating system.

NOS/VE Full Screen Editor (HSCS)

Section 1: Tuesday, April 23, 10 am-noon. Section 2: Thursday, May 16, 2-4 pm. Creating and editing NOS/VE files, expanded on-line help for each function, and customized functions. You must know the NOS/VE operating system.

Communications

CMS Electronic Mail (SPCS)

Section 1: Wednesday, April 3, 9:30-11:30 am. Section 2: Friday, April 26, 9:30-11:30 am. Corresponding with other computer users locally and worldwide, via BITNET.

Internet Overview (SPCS)

Friday, April 12, 10:30-11:30 am. Using the CMS central system to log on to and transfer files to/from other computers on the Internet.

YTERM (SPCS)

Wednesday, April 17, 10:30-11:30 am. Demonstration of the YTERM terminal emulation package, as used with the CMS operating system.

ProComm (SPCS)

Thursday, April 25, 10:30-11:30 am. Demonstration of the ProComm terminal emulation package, as used with the CMS operating system.

TinCan (SPCS)

Tuesday, April 16, 10:30-11:30 am. Demonstration of the TinCan terminal emulation package, as used with the CMS operating system.

ProComm-Computing by Phone (ACS)

Tuesday, April 9, 2:30-4:30 pm. Using ProComm microcomputer software to connect to LUMINA and other campus central system computers, and to upload and download files.

Electronic Mail & Networks (ACS)

Monday and Wednesday, May 6-8, 2:30-4:30 pm. Descriptions of the BITNET and Internet networks, and how to use them for electronic mail and transferring files, with emphasis on the VAX VMS system. You must know a central computing system.

Electronic Mail on NOS/VE (HSCS)

Section 1: Wednesday, April 17, 2-4 pm. Section 2: Thursday, May 9, 10 am-noon. Using the E-mail system on NOS/VE to send and receive mail, transfer microcomputer files, and use bulletin boards and networks.

Statistics

SAS/BASE (ACS AND SPCS)

Tuesday, April 9, 9:30-noon and Thursday, April 11, 9:30-11:30 am. The essentials of the SAS statistical package for analysis, data storage and retrieval, report writing, graphics, and more.

Short Courses

SAS/STAT (ACS AND SPCS)

Thursday, April 18, 9:30-11:30 am. The statistical analysis features of SAS, such as correlation, regression, and analysis of variance.

SAS on CMS/VM (SPCS)

Monday, April 8, 10-11 am. Demonstration of SAS on the CMS/VM operating system.

SAS on the PC (SPCS)

Tuesday, April 30, 9:30-11:30 am. Discussion of features specific to the IBM-PC version of SAS.

Using SPSS (ACS, HSCS, SPCS)

Monday, Wednesday, and Friday, April 22-26, 2:30-4:30 pm. How to use the Statistical Package for the Social Sciences, available on several central computing systems. You must know a central computing system.

SAS on the VAX (ACS)

Wednesday, April 10, 2:30-4:30 pm. Demonstration of SAS on the VAX/VMS system.

Databases

NOMAD2 (SPCS)

Monday, April 29, 2-4 pm. Demonstration of NOMAD2, a database management system on the CMS operating system.

Graphics

SAS/GRAPH (SPCS)

Tuesday, April 23, 9:30-11:30 am. Exploring SAS graphics for presentation of your data as plots, charts, maps, and contour plots. You must know the CMS operating system.

PicSure Interactive Graphics (HSCS)

Section 1: Tuesday, April 9, 2-4:30 pm. Section 2: Tuesday, May 14, 2-4:30 pm. Using PicSure to create bar

charts, scattergrams, line charts, pie charts, and combinations. Demonstrated on the NOS/VE operating system.

MinnesotaMEDLINE

Call the Bio-Medical Library at 626-5808 for information on class times and registration procedures.)

Basics of MinnesotaMEDLINE Searching (HSCS)

Section 1: Tuesday, April 2, 9-10:45 am. Section 2: Tuesday, April 16, 5-6:45 pm. Section 3: Wednesday, May 8, 2:30-4:15 pm. Section 4: Monday, June 10, 9:30-11:15 am. Section 5: Thursday, July 18, 1-2:45 pm. Section 6: Wednesday, August 7, 10-11:45 am. Basic commands and the use of Medical Subject Headings (MeSH) in searching the medical literature database on the NOS/VE operating system.

Intermediate MinnesotaMEDLINE Searching (HSCS)

Section 1: Thursday, April 11, 10-11:30 am. Section 2: Monday, May 6, 1-2:30 pm. Section 3: Tuesday, June 25, 9:00-10:30 am. Section 4: Wednesday, July 31, 2:30-4:00 pm. Section 5: Thursday, August 15, 10-11:30 am. Advanced searching capabilities of the MinnesotaMEDLINE system on the NOS/VE operating system, with emphasis on ways to narrow and broaden search strategy.

Other

PROFS Calendars (SPCS)

Friday, April 19, 10-11 am. Viewing, maintaining, and changing your electronic calendar on the CMS operating system.

C Programming (ACS)

Monday, Wednesday, and Friday, May 13-17, 2:30-4:30 pm. Introduction to syntax, style, and structure of the C programming language. Requires some programming background. You must know the UNIX operating system.

Public Labs

Location	Central System Printing	Terminals	Micros	Phone Numbers
East Bank				
117 Appleby Hall			X	624-8376
148 Architecture			X	624-9583
278 Diehl Hall	laser printer	X	X	624-3128
4-204 EE/CSci	laser printer	X		625-9081
54 Eddy Hall Annex			X	625-0314
121 Elliott Hall	impact/laser printer	X	X	624-0866
14 Folwell Hall	laser printer	X	X	625-4896
1 Lind Hall	laser printer	X		625-0801
26 Lind Hall			X	626-0856
306B Lind Hall			X	625-9032
308 Mechanical Eng	laser printer	X		625-7352
8-425 Moos Tower			X	625-1477
1 Nicholson Hall	laser printer	X		625-5082
130 Physics	laser printer	X	X	625-6820
9 Walter Library	laser printer	X	X	626-1899
St. Paul				
B40 Central Library		X		624-3269
B50 Central Library	laser printer		X	
135 Classroom Office Bldg			X	624-9226
305 McNeal Hall			X	624-5367
436 Veterinary Science			X	624-3269
West Bank				
170 Anderson Hall	laser printer		X	624-6526
140 Blegen Hall	impact printer	X		624-5278
455 Blegen Hall*			X	626-7778
B2 Wilson Library	laser printer		X	626-2205

Lab hours change quarterly, see the ACS Brief: Public Labs for current hours. These facilities have equipment that can access LUMINA, Info and The Calendar, ACS central systems (UX, UZ, VX, VZ, CA), HSCS central systems (NOS and NOS/VE), and SPCS and the School of Management's IBM central systems. Micros in public microcomputer labs that are connected to AppleTalk can access ACS services. Micro access cards, which you can purchase for \$30 at the Bursar's Office, permit you to use the microcomputers. You do not need a card to use terminals. The following residence halls also have public terminals: Bailey Hall, Centennial Hall, Comstock Hall, Frontier Hall, Middlebrook Hall, Pioneer Hall, Sanford Hall, and Territorial Hall.

Help Page

ACS HELP-Lines

Central Systems (UX,VX,VZ,CA):

Software (including Graphics, Databases, and Statistics Packages), Hardware, Networking

626-5592 8 am to 5 pm, weekdays

Artificial Intelligence:

625-8332 3 to 4 pm, Monday, Wednesday, Friday

Humanities, Text Analysis:

625-8332 3 to 4 pm, Monday, Wednesday, Friday

Equipment Repair:

625-1595 8 am to 4:30 pm, weekdays

Lauderdale Tape Library:

626-1838 9 am to 3 pm, weekdays

Other HELP-Lines

Health Science Computing Services:

5-235 Moos Tower

625-2666 7:45 am to 4:30 pm, weekdays

LUMINA (communications questions):

626-2272 8 am to 5 pm, weekdays

Microcomputer and Workstation Networks Center:

125 Shepherd Lab

626-4276 9 am to 4 pm, weekdays

St. Paul Computing Services:

90 Coffey Hall

624-6235 9 am to 5 pm, Monday through Thursday; 9 am to 4 pm, Friday

Consulting

Walk-In Consulting

1 Nicholson Hall 10 am to 4 pm, Monday through Friday

Electronic Mail Consulting

Consulting is now available via the mail facility on all ACS systems (the UX, VX, VZ, and CA). Send mail to user name CONSULT for questions after hours and for low-priority questions that are not critical to your immediate computing work. Replies will be sent to your account through the mail facility on your system.

Instructional Computing Consultant

Department instructors may call 626-0200 for assistance in choosing ACS systems (ENCORE/UNIX, VAX/VMS, CYBER/NOS), software, and for answers to any other inquiries on using computers for instructional computing.

Computing Information Center

1 Nicholson Hall, 625-7397

MAD@UMNACVX, MAD@VX.ACS.UMN.EDU

Computing account and grant applications available for ENCORE, VAX, and CYBER computers.

Short course enrollment. Short course schedules and class descriptions available. Call 626-0032.

Assistance in ordering vendor documentation. Vendor documentation is not always available in the University bookstores and may be ordered directly from the company.

Complete documentation collection. Reference copies of vendor and all other documentation for ACS software.

Free ACS documentation. General information and central system information available.

Computing Newsletters. Subscribe to the *ACS Newsletter*. Newsletters from other computing centers are also available for reference.

ACS Directory

100 Laud CF (campus mail)	626-1600	LaudCF: Computer Consoles	626-0550
FAX	626-7440	File Restoration	626-0595
Director—Michael Skow	625-6349	Magnetic Media Lib/Operations (9 am-3 pm)	626-1838
Deputy Director—Lawrence Liddiard	625-4016	Operations Coordinator	626-1646
Adm. Assistant Dir—James Foster	625-1511	Services (tapes, laser disks, CD ROMs, Xerox, plotters) Supervisor	626-1661
Access: ACS systems (UX, VX, VZ, CA)		Users' room	626-0386
3/12/2400 bps + 7/Even/1	626-1630	Networking—Paul Tranby	626-0815
12/2400 bps + 8/None/1	626-1631	Newsletter and Publications:	
Accounts: (8 am-12 pm, 1-4:30 pm)		ACS newsletter subscriptions	625-7397
ENCORE, VAX, CYBER	625-1511	Technical Publications—Steven Brehe	626-1828
Assistance and Information:		NOS Systems—David Bianchi	626-1827
HELP-Line (including Graphics, Databases, Statistics Packages, and Text Processing)	626-5592	Operations, Asst Director—Richard Folden	626-0031
Equipment repair	625-1595	Programming Environments—Jim Miner	626-1091
Computing Information Center	625-7397	Shuttle Service	625-9525
Short Course Registration	626-0032	System Status (recording) status and hours	626-1819
Artificial Intelligence	625-8332	UNIX systems—David Bianchi	626-1827
BITNET/Electronic mail	625-1543	User Services—Richard Hotchkiss	625-0795
Faculty Instructional Computing	626-0200	VMS Systems—Marisa Riviere	626-0268
Humanities/Text Analysis	625-8332		
Math and Engineering Packages	625-5830		
Contract Services—Cheryl Vollhaber	625-2303		
DEC CSLG/ESL Software Distribution	626-0268		
Engineering Services, LaudCF	625-1595		
Asst Director—Donald Clark	625-1583		
Equipment Maintenance/Repair	625-1595		
Info/Public Information Service	626-1527		

Other University Computing Services

Health Sciences Computing Services	625-5444
Microcomputer and Workstation Networks Center	625-1300
St. Paul Computing Services	624-7788

Central Computing Systems

The UX research and instructional system, an ENCORE Multi-max multiprocessor running the UMAX 4.3 operating system (4.3 BSD UNIX).

The VX research and instructional cluster: a Digital Equipment Corporation VAX 6000-510, clustered with other VAX systems using the VMS 5.4 operating system.

The VZ system for non-University users: a Digital Equipment Corporation VAX 3100 using the VMS 5.4 operating system. The VZ is part of the VMS cluster system.

The CA research and instructional system: a Control Data Corporation CYBER 830, using the NOS 2 operating system. The CA provides interactive and batch computing for University researchers and students.

Accounts

To use our central computer systems, you need a username. This user name (with a secret password) is your authorization to use the computer systems. You can get application forms and rate information from ACS Accounting, 100 LaudCF (625-1511).

Operating Hours

The ENCORE UX, VAX VX, VAX VZ, and CYBER CA systems run continuously from 6 pm Sunday until 6 am the following Sunday.

On the second and fourth Fridays of each month from 5 am to 7 am the CYBER CA system is unavailable. Low-rate hours are from 8 pm to 8 am Monday through Friday, and all operating hours on Saturday and Sunday.

ACS Newsletter Subscription Request

Send to ACS Computing Information Center, 1 Nicholson Hall, 216 Pillsbury Drive SE, Minneapolis, MN 55455

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