

SPCS NEWSLETTER

ST. PAUL COMPUTING SERVICES SEPTEMBER, 1989 UNIVERSITY OF MINNESOTA

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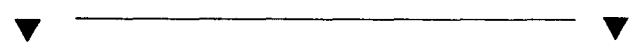
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WELCOME EDITION



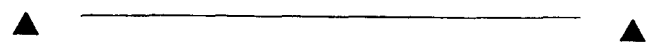
Welcome to St. Paul Computing Services! We are one of several on-campus computing centers operating under the umbrella of Information Systems. Our 'sister' centers include Academic Computing Services (ACS) and Health Sciences Computing Services.

This special issue of our newsletter is an introduction to the services and capabilities of SPCS. Our mission is to serve the computing needs of faculty, staff, and students of the University of Minnesota on IBM-compatible hardware and software products. Actively involved in all major areas of University computing, including research, administration, instruction, and public service, we strive for easy accessibility and use.



NEW HPO

In July, 1989, SPCS converted to VM/SP HPO Release 5, a new version of CP (CP is the Control Program that runs under VM/370). The new HPO (High Performance Option) version contains significant efficiency and performance enhancements. There are no general user command differences.



Welcome to SPCS

OUR COMPUTER

HARDWARE

SPCS operates an IBM 4381 mainframe under the control of Virtual Machine/System Product (VM/SP). VM provides each user in our multiple user system with a functional simulation of a computer, called a virtual machine. Conversational Monitor System (CMS) is the interactive operating system used to create, modify, debug, and run programs.

We have dual density tape drives to accommodate 800, 1600, and 6250 bpi density tapes.

Our center has two high speed line printers and one laser printer. For large laser runs, we also have access to the off-site laser printer owned and operated by Administrative Information Services. For graphics output, we have an eight-pen color plotter .

There are terminals available for public use in 90 Coffey Hall and in all of the University-wide Public Computing Laboratories. Microcomputer users can have their microcomputer emulate a terminal by using special software and an ITE phone or a phone-and-modem combination.

SOFTWARE

STATISTICAL

GLIM

SAS

SCA

SPSSx

DATABASE

AS

NOMAD2

SQL

PROGRAMMING

LANGUAGES

ASSEMBLER

C

COBOL

IMSL

VS FORTRAN

VS PASCAL

TEXT

FORMATTING

DCF/SCRIPT

DISPLAYWRITE 370

ELECTRONIC MAIL

MAILER

PROFS

SPCS has site license agreements to distribute SAS, TinCan, and YTERM for microcomputers. ▲

ELECTRONIC MAIL

SPCS is a member of BITNET, the international network of educational computers. Currently, nearly 3000 computers, representing about 500 institutions, belong to this network. BITNET utilizes existing equipment at participating institutions, and offers every member of the network the ability to communicate directly with all other members. SPCS is also connected to the Internet, a collection of linked networks that adhere to common addressing schemes and networking protocols. Among the networks included in the Internet are ARPANET, NSFNET, CICNet, and MRNet.

Services available through BITNET include electronic mail, transfer of programs and documents, access to the SPCS bulletin board and user directory, and access to computer facilities and services of other member universities.

Electronic mail offers users instant access to the world. Features:

- ▼ Electronic mail can be sent and received at the user's convenience (different time zones and conventional mail delays are no longer obstacles);
- ▼ Electronic mail can be sent to individual users or to groups of users simultaneously;
- ▼ Electronic mail is less expensive than long distance phone calls;
- ▼ Sending electronic mail is as easy as sending a letter.

Through our menu-driven system, SPCS users can send mail to users on the SPCS mainframe, to any other users in BITNET, and to users on the Internet. SPCS users can also send messages to non-BITNET users if that computer is running TCP/IP software.

Our BITNET address: UMINN1

Our Internet address: vm1.spcs.umn.edu

Your SPCS account grants you access to this and more. Stop by the Help Desk for details. ▲

Welcome to SPCS

SERVICES

HELP DESK

SPCS maintains Help Desk Services for users seeking computing advice. Services include walk-in, telephone, and on-line problem determination and assistance; consultation; tape check-in/out; graphics assistance; and software demonstrations.

ON-LINE CONSULTING

When you cannot come to Coffey Hall, or when you are logged on in the evening or on weekends, we encourage you to send your questions or problems to our consulting userid, HELPDESK. An SPCS staff member checks HELPDESK every hour from 8 a.m. to 5:30 p.m. Monday - Friday and will respond with an answer or acknowledgement as soon as possible.

CONTRACT PROGRAMMING

We have a staff of professional computer programmers trained in system design, program coding, testing, and documentation for implementing new computer applications. Because of the many variables associated with any programming job, estimates of "typical" costs are difficult. Free estimates are available by appointment.

TRAINING

We offer short courses on several subjects each quarter, including CMS, CMS Electronic Mail, SAS, PC SAS, YTERM, TinCan, PROCMM, and NOMAD2. Short courses are advertised in the Minnesota Daily, in our newsletter, and on our electronic bulletin board. Registration materials are available in rooms 50 and 90 Coffey Hall.

OPERATIONS SERVICES

Our Operations staff provides: tape library service for rental (or purchase) and storage of magnetic tapes; computer services for users wanting to automate computer runs (such as scheduling, running, quality control, and distribution of materials); and special handling of sensitive output listings (by request only).

DATA ENTRY

We oversee the Data Entry department located in 6 North Hall. Services include: word processing with Word Perfect; data entry and verification; assistance in efficient preparation of coding sheets and questionnaires; output on diskettes, tape, or as a file; and hard copy of output.

DOCUMENTATION

This newsletter is published at the beginning of each quarter, and contains updated information about our hardware and software, services, policies, and short course schedules. To receive a free subscription, call or stop by the Main Office. We also provide free documentation notes about the hardware and software available at SPCS (available in 50 or 90 Coffey Hall). There is a small charge for the lengthy handouts. Software manuals are available for reference in 90 Coffey Hall. If you wish to purchase a manual, we will order it for you.

MICRO LAB

We oversee the Microcomputer Lab located in room B50 of the St. Paul Campus Library. This lab is open to all students, staff, and faculty of the University of Minnesota who possess a "Micro Lab Access Card" (\$30/quarter, available from the St. Paul Bursar's Office). The lab is equipped with IBM PC's, Apple IIe's, Apple Macintoshes, and laser printers. ▲

GOOD-BYE, ICON

The SPCS online consulting address for electronic mail has changed to HELPDESK from ICON. If you have questions and prefer electronic mail to phone or walk-in service, feel free to send your questions to HELPDESK. Consultants answer HELPDESK's mail periodically throughout the day. For in-person consulting, St. Paul Computing Services offers help for users from 8 a.m. to 5:30 p.m. Monday through Friday at our Help Desk in room 90 of Coffey Hall on the St. Paul campus. You can also reach the Help Desk consultant by phone at 624-6235 during these hours.

Welcome to SPCS

COMPUTER ACCOUNTS

To use our computer or to enlist programming, consulting, or data entry services, you'll need an SPCS Computer Account. Phone or stop by the Main Office to obtain the appropriate form(s). We offer two types of Computer Accounts: Regular Accounts and Time Grant Accounts.

REGULAR ACCOUNT

(for funded computer activity)

All computing center resource usage for this type of account is completely billable. This type of account is for:

- ▼ non-University users
- ▼ users who have been provided with funding for their computing needs
- ▼ persons seeking application programming services
- ▼ persons seeking data entry services.

TIME GRANT ACCOUNT

(for projects that have NOT been provided with funding for computer work)

There are four types of Time Grants:

- C** Opened by an instructor; used for course-related activity (for student classwork and class-related activities)
- E** Opened by an instructor; used for developing computer-assisted instructional programs. Once developed, a Type C account should be opened for student use.
- G** For graduate student instructional-related activity, directed toward obtaining a degree (thesis, Plan B paper, and so on).
- R** For research-related activity, including faculty and graduate students doing research that is not thesis-related

Type C and E time grants operate without a ceiling on support dollars.

Type G and R time grants have the following limitations:

- 1) An initial payment of \$50 (not refundable) will be charged per user to establish an account.
- 2) Once the account has been established, computer resource and processing costs will be covered up to a limit of \$1000. Personnel costs and supply-related sales are not covered by Time Grants and will be billed.
- 3) Usage beyond this limit will be fully charged. However, grants may be extended under programs presently managed by computer grant committees.

By University policy, grant users are required to ANNUALLY establish their eligibility for computer processing Time Grant support. To administer this policy, we are required to close all non-renewed Time Grants at the end of the fiscal year (June 30, 1990). If you do not renew, your computer account will be closed and you will lose access to all your permanent files.

KEEPING TRACK OF COSTS

The ACCSTAT utility program allows you to view your computer account balance information at your convenience. From CMS mode (at the Ready message), type:

```
accstat
```

and press ENTER. You'll be prompted to enter a set of dates, or to press ENTER to select the displayed dates. The accounting information from the chosen time period will be put into a file called ACCSTAT LISTING, which will be sent to your reader. Use the RDRLIST command to view the file. Refer to Documentation Note 23 (available at the Help Desk or the Main Office) for more information. ▲

Welcome to SPCS

WHY SAS ?

SAS (Statistical Analysis System) is a comprehensive software package comprised of several data processing tools. The base SAS system provides facilities for information storage and retrieval, data modification and programming, report writing, statistical analysis, and file handling. In addition to base SAS, we have SAS/STAT, SAS/GRAPH, SAS/ETS, SAS/FSP, SAS/OR, and SAS/AF on our mainframe.

Why should you learn SAS? Besides being an excellent tool for analyzing your research data, SAS programming knowledge is marketable outside the University environment. SAS is widely used in areas such as the airlines, government, data processing vendors and consultants, utilities, research, insurance, finance, and communication. A partial listing (from the Twin Cities SAS User Group) of Twin Cities companies using SAS:

Abbott Northwestern
Basin Electric Power Cooperative
Blue Cross Blue Shield
Burlington Northern
Deluxe Check Printers
Eco Lab
Fingerhut Corp
Hennepin County Government Center
InterTechnologies Group
ITG Corporation
Land O' Lakes
Levin Software
Medtronic Inc.
Mid Continent Area Power Pool
Minnesota Dept. of Transportation
Minnesota Mutual Life Insurance
MSI Insurance Co.
National Car Rental
North American Life and Casualty
Northern States Power
Northrup King Co.
Norwest
Partners National Health Plans
Pillsbury Research and Development
St. Paul Companies
Search Institute
3M Corp.
Travelers Express Co., Inc. ▲

NOMAD

Database management systems are computer program packages designed for the definition, creation, manipulation, and summarization of databases. We offer three such systems for our users: NOMAD, from MUST Software Company; AS, from IBM; and SQL/DS, also from IBM.

Although all three systems are installed on our mainframe and are available to SPCS users, we only offer full support for NOMAD. Our staff teaches regular classes for NOMAD users, is available daily to answer user questions, and will contract to develop custom NOMAD applications.

NOMAD is used for a variety of database computing applications, including accounting, inventory management, and student record keeping. SPCS is not the only installation offering NOMAD at the University of Minnesota: the Biometry Division of the School of Public Health uses NOMAD for various research projects. NOMAD lends itself easily to these and many other types of applications and is widely used across the country. In all, there are more than 700 NOMAD sites in the United States, including local firms such as 3M, Dayton-Hudson, and the St. Paul Companies.

In addition to database management systems such as NOMAD, SPCS users may opt to use computer languages such as COBOL or FORTRAN to meet their information management needs. While such traditional approaches can be designed to be extremely efficient, their design, development, and maintenance often require considerable effort by skilled programmers. In contrast, advanced database management systems such as NOMAD allow the development and maintenance of information systems at greatly reduced programmer costs. Further, NOMAD allows end-users with only modest training to do their own queries from the database.

MUST Software also offers a PC version of NOMAD that can stand alone or work in conjunction with mainframe NOMAD. PC NOMAD resembles and operates in the same way as mainframe NOMAD. If you are interested in learning more about NOMAD and what it can do for you, register for our introductory short course on October 26th (see page 14 for details). ▲

Communication

LISTSERV GROUPS

In this age of communication, it's easy to get lost in a sea of books, periodicals, and literature. And yes, here is yet another way to "stay on top" of information that is important to you.

As an SPCS user, you can subscribe to Electronic Discussion Groups, also referred to as Listserv Groups, Electronic Bulletin Boards, or Mail Reflectors. Electronic Discussion Groups enable you to interact electronically with a fairly large group of your peers, providing an open forum for all types of questions, problems, and solutions. Subscribers receive mail on a regular basis. Mail can range from one individual message to a compiled grouping of messages related to the Discussion Group.

Here's how it works.

1. From the table on page 7, find a group that you would be interested in subscribing to. Note the Userid, Nodeid, and Groupname of that particular group. At the CMS Ready message, issue the following command:

```
tell userid at nodeid subscribe groupname yourfullname
```

where yourfullname is your name.

For example, to enter a subscription to the group specializing in SAS issues, John Doe would enter:

```
tell listserv at ohstvma subscribe sas-L John G. Doe
```

This command tells a software 'machine' at Ohio State University that you wish to subscribe to the SAS-L discussion group.

2. After awhile, you will receive an interactive message and/or mail from the group's listserv machine, administrator, or moderator, confirming that your name has been entered into the group's mailing list. From then on just watch your electronic mailbox for messages from your group.

If you would like to contribute a question or comment to the group, you can simply send electronic mail to the group's electronic mail address. To do this, issue the following command:

```
mail groupname at nodeid
```

Mailer will prompt you for additional information, including a subject heading for your mail. It is wise to include a subject in your note as an easy point of reference for other group members. An example of the mail command mentioned above is:

```
mail sas-L at ohstvma
```

3. Later, to unsubscribe to a particular list, you can use a command similar to the one you originally used to subscribe with. The command is:

```
tell userid at nodeid unsubscribe groupname
```

To unsubscribe to the SAS Discussion Group, John Doe would enter:

```
tell listserv at ohstvma unsubscribe sas-L
```

One word of caution: Electronic Discussion Groups distribute a great deal of mail. If you don't log on frequently to read your mail, it may build up in your reader, causing your account to be billed for storage costs.

GROUPNAME	USER ID	NODE ID	DISCUSSION TOPICS
AG-EXP-L	LISTSERV	NDSUVM1	Expert systems and their applications in agricultural production.
AI-LIST	LISTSERV	NDSUVM1	Artificial Intelligence
BITNEWS	LISTSERV	BITNIC	Official medium of the BITNET Network Information Center
CSEMLIST	SARASERV	HASARA11	Computer Science in Economics and Management
EDTECH	LISTSERV	OHSTVMA	The field of educational technology
ETHICS-L	LISTSERV	MARIST	Topics in computer ethics
FRAC-L	LISTSERV	GITVM1	Mathematics and the generation of fractals
IBMPC-L	LISTSERV	POLYGRAF	Technical discussion of the IBM personal computer and compatible micro-computers
INFO-NETS	LISTSERV	BITNIC	Networks, focusing on inter-network connectivity
INFO-MAC	LISTSERV	POLYGRAF	All Macintosh Topics
NEXT-L	LISTSERV	BROWNVN	All NeXT Topics
MEDNEWS	LISTSERV	ASUACAD	The Health Info-Com Network medical newsletter
NETMONTH	LISTSERV	MARIST	Newsletter about issues related to BITNET
RISKS	LISTSERV	MARIST	Issues related to risks to the public in the use of computer systems
ROOTS-L	LISTSERV	NDSUVM1	Tools, techniques, and requests for information on genealogical research
SAS-L	LISTSERV	OHSTVMA	All SAS topics
VETMED-L	LISTSERV	VTVM2	Veterinary Medicine practice, education, and research
VIRUS-L	LISTSERV	LEHIIBM2	Related to viruses on both micros and mainframes
XEDIT-L	LISTSERV	OHSTVMA	Tips, techniques, and drawbacks to XEDIT
386USERS	LISTSERV	NDSUVM1	Issues related to 80386 microcomputers

More than one hundred other discussion groups are available via BITNET, along with several hundred more via the Internet. You can view lists of these groups at the Help Desk. ▲

Communication

MICRO-TO-HOST LINK

SPCS's PC-SAS users will soon receive materials which will facilitate use of the SAS Micro-to-Host Link. The micro-to-host link will allow communication between a PC-SAS session and a SAS session on the SPCS mainframe. This communication will enable users to transfer SAS data sets between their microcomputer and our mainframe. This transfer was not possible in the past because SAS on the mainframe and PC-SAS store SAS data sets in different formats. Utilizing the Micro-to-Host Link, the PROC UPLOAD and PROC DOWNLOAD procedures in PC-SAS perform the necessary translation between data set storage formats.

The Micro-to-Host Link will also enable PC-SAS users to submit PC-SAS programs to run on the mainframe, and to access mainframe data sets from their PC-SAS session. Some possible applications of these features include running machine-intensive PC-SAS programs on the mainframe, developing and testing mainframe SAS programs on the microcomputer (thus reducing mainframe costs), and using the microcomputer to analyze or subset large data sets stored on the mainframe (i.e., data sets too large to store on your microcomputer). If you are interested in PC-SAS or have questions about the Micro-to-Host Link, please contact the SPCS Help Desk by phone at 624-6235 or by electronic mail to HelpDesk@UMINN1 (or HelpDesk@vm1.spcs.umn.edu). ▲

ST. PAUL MICROCOMPUTER LAB

The St. Paul Microcomputer Lab is open to all students, staff, and faculty members of the University of Minnesota who possess an ACS Microcomputer Access Card (available from the St. Paul Bursar's Office for \$30/quarter). A Microcomputer Access Card is only valid during the quarter in which it is purchased. High quality printing is available on the Apple LaserWriter Plus, an HP LaserJet Plus, and an HP ColorPro Plotter. To use one of these printers, you'll need a Laser Printer Access Card, available for \$1.00 from the Bursar's Office. Each Printer Access Card is good for ten pages of manuscript-quality print and can be used any time. The lab is operated on a first-come, first-served basis, and each user is limited to 2 hours per session.

S O F T W A R E

IBM	MACINTOSH	APPLE IIe
dBaseIII	MacPaint	AppleWork
GLIM	MacPascal	MousePaint
Lotus 123	MacSpell+	MouseWrite
Minitab	MacTerminal	
PC Paintbrush	MacWrite	
Statistix	MS-Basic	IBM PS/2
Turbo Pascal	MS-Chart	Microsoft
WordPerfect	MS-Multiplan	Windows
WordStar	MS-Word	PC SAS
WordStar 2000		

SYSTEM CONFIGURATION

11 IBM PC s with 640K memory
1 IBM PC/AT with 512K memory
2 IBM PS/2 model 50 with 1 Mb memory
1 Apple IIe with 128k memory
6 Macintosh Plus with 1 Mb memory
3 Macintosh SE with 1 Mb memory
1 Macintosh II with 1 Mb memory

Monday - Friday 8 am - 10 pm
Saturday 10 am - 2 pm
Sunday 6 pm - 10 pm

Consulting Corner



How can I use SAS to count the total numbers of females and males for each year in my data?



To count the number of unique occurrences of one value within another value, sort the data by both variables. Whenever a BY statement is used with a SET, MERGE, or UPDATE statement, two special variables are automatically created for each variable in the BY statement: FIRST.BY and LAST.BY. FIRST.BY equals 1 for the first observation in a BY group; otherwise, it equals 0. LAST.BY equals 1 for the last observation in a BY group; otherwise, it equals 0. These temporary variables can be used to conditionally process data.

```
DATA AA;
INPUT NAME $ SEX $ YEAR @@;
CARDS;
Elizabeth    F    88          Cheryl    F    89
Alfred       M    88          John      M    89
Peter        M    88          Mark      M    89
Robert       M    88          Donald    M    89
Thomas       M    88          Matthew   M    89
Maria        F    88          Josh      M    89
Patrick      M    88          Lynette   F    89
Christine    F    88
;
PROC SORT; BY YEAR SEX;
DATA COUNT1;
  SET AA;
  BY YEAR SEX;
  IF FIRST.SEX THEN COUNT=0;
  COUNT + 1;
  IF LAST.SEX THEN OUTPUT;
  KEEP SEX YEAR COUNT;
PROC PRINT DATA=COUNT1 NOOBS;
  TITLE1 'Total number of females/males by year';
RUN;
```

The output from the first Proc PRINT is:

Total number of females/males by year

SEX	YEAR	COUNT
F	88	3
M	88	5
F	89	2
M	89	5

If you needed the total number of observations by year, you could obtain them by changing FIRST.SEX and LAST.SEX to FIRST.YEAR and LAST.YEAR.



Is there any way in SAS to keep track of which dataset an observation came from after merging two datasets?



Use the `IN=` variable in parentheses after the name of the data set. Like the `FIRST.BY` and `LAST.BY` variables, the `IN=` variables can be used in programming statements in a `DATA` step. To output their values, assign them to new variables. In this example, we are merging dataset `ONE` with dataset `TWO` and, in the new dataset `BOTH`, creating a new variable called `SOURCE` that shows where an observation came from.

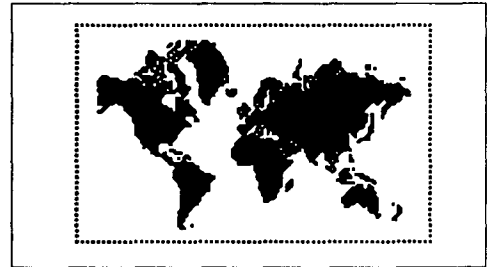
```
DATA ONE;
INPUT ID COMPANY $ 6-34 PARENTCO $ 37-80;
CARDS;
1208 Whitnon Machine Spindle      GMN Georg Muller Nuremberg Ag
1212 Whittar Steel Strip Division  Dofasco Inc.
1214 American Pacific Mint Inc.    Forum Reinsurance Co. Ltd.
1220 Gold King Consolidated Inc.   Texter SA
1221 Kobe Copper Products Inc.     Kobe Steel Ltd.
;
DATA TWO;
INPUT ID COMPANY $ 6-34 PARENTCO $ 37-80;
CARDS;
1210 Gas Gathering Systems Inc.    Anglo-American Corp of SA Ltd.
1211 Von Gahlen Co.               Von Gahlen
1213 W. J. Services                Worms Services Meritimes
;
DATA BOTH;
  LENGTH SOURCE 2;
  MERGE ONE(IN=ONE) TWO(IN=TWO);
  BY ID;
  IF ONE THEN SOURCE=19;
  ELSE IF TWO THEN SOURCE=21;
PROC PRINT DATA=BOTH NOOBS;
TITLE1 'Merged dataset';
RUN;
```

The output from Proc PRINT is:

Merged dataset

SOURCE	ID	COMPANY	PARENTCO
19	1208	Whitnon Machine Spindle	GMN Georg Muller Nuremberg Ag
21	1210	Gas Gathering Systems Inc.	Anglo-American Corp of SA Ltd.
21	1211	Von Gahlen Co.	Von Gahlen
19	1212	Whittar Steel Strip Division	Dofasco Inc.
21	1213	W. J. Services	Worms Services Meritimes
19	1214	American Pacific Mint Inc.	Forum Reinsurance Co. Ltd.
19	1220	Gold King Consolidated Inc.	Texter SA
19	1221	Kobe Copper Products Inc.	Kobe Steel Ltd.

Q I use the SPCS menu system and would like to send electronic mail to a colleague in New Zealand. Her electronic mail address is `userid@massey.ac.nz`. As for other non-BITNET addresses, I have tried using her address in the `.ddn` command, but that did not work. Can I send mail to her?



A Yes, you can. As you mentioned, the `.ddn` command is often used for non-BITNET addresses. The interpreter which translates the `.ddn` line in your PROFS note will, however, recognize only valid TCP (Transmission Control Protocol) addresses. These include many addresses ending in `.com`, `.arpa`, `.mil`, `.gov`, and `.edu`. To send mail to an address ending with some other string (such as `.nz`), you must route the mail through a computer which does not recognize these non-TCP addresses. In this case, CUNY (City University of New York) is a good choice. Including the following line in your note will route the mail correctly:

```
.ddn cunyvm.cuny.edu(userid%massey.ac.nz)
```

For more information regarding the `.ddn` command, see the green page between pages 32 and 33 of the SPCS Electronic Communication User's Guide.

WORD PROCESSING

The Data Entry section of SPCS announces the addition of word processing capabilities to its list of services. Give your fingers a rest and let us do the work!
We offer:

- ▼ SPEED
- ▼ ACCURACY
- ▼ PROFESSIONAL QUALITY
- ▼ OUTPUT IN A VARIETY OF FORMS: TAPE, DISKETTE, LASER PRINT ON PAPER, MAINFRAME FILES

6 NORTH HALL

624-7297

Short Course Calendar

SEPTEMBER - OCTOBER - NOVEMBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10 <i>September</i>	11 <i>CMS Intro (Day 1) 2 - 4</i>	12	13 <i>CMS Intro (Day 2) 2 - 4</i>	14	15	16
17	18 <i>SAS/Base (Day 1) 2 - 5</i>	19	20 <i>SAS/Base (Day 2) 2 - 4</i>	21	22	23
24	25	26	27	28	29	30
1 <i>October</i>	2	3	4	5 <i>User Orientation 2 - 4</i>	6	7
8	9 <i>CMS Intro (Day 1) 2 - 4</i>	10	11 <i>CMS Intro (Day 2) 2 - 4</i>	12 <i>CMS Mail 2 - 4</i>	13 <i>YTERM 3 - 4</i>	14
15	16 <i>SAS/Base (Day 1) 2 - 5</i>	17 <i>CMS Utilities 2 - 4</i>	18 <i>SAS/Base (Day 2) 2 - 4</i>	19 <i>CMS Batch 2 - 4</i>	20 <i>SAS/Stat 2 - 4</i>	21
22	23 <i>PROCOMM 3 - 4</i>	24 <i>SAS/Graph 2 - 4</i>	25 <i>TinCan 3 - 4</i>	26 <i>NOMAD2 2 - 3:30</i>	27 <i>PC SAS 2 - 4</i>	28
29	30 <i>CMS Tapes 2 - 4</i>	31 <i>CMS REXX 2 - 4</i>	<i>November 1 CMS Mail 2 - 4</i>	2	3	4

Short Course Policies

Each quarter, St. Paul Computing Services (SPCS) offers a number of short courses. These courses are offered to the University community for a modest fee, and to the public for a slightly higher fee. Special course arrangements for groups of 6 or more are available for a negotiated fee. Course credit is not earned for short course offerings.

PRICES

Charges are categorized as follows:

- (1) University Student
- (2) University Faculty/Staff
- (3) SPCS Non-University User

The prices listed under each course description apply to groups 1, 2, and 3, respectively.

PREREQUISITES

100 CMS Introduction or equivalent knowledge is required for CMS BATCH, CMS Utilities, CMS Tapes, CMS REXX, SAS/Base, SAS/Stat, and SAS/Graph. 200 SAS/Base or equivalent knowledge is required for SAS/Stat, SAS/GRAPH, and PC SAS Overview.

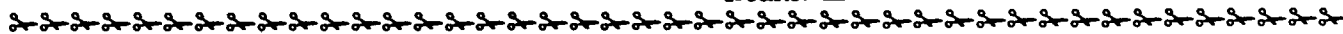
REGISTRATION POLICY

The deadline is 4:30 p.m. on the day before the course begins. Full payment is due at the time of registration. Fees may be paid by cash, check, University budget number, or may be charged to your authorized SPCS user account. Most courses have an enrollment limit, so please register early.

When registering by mail, please allow one week for SPCS to return your copy of the completed registration form (required for course entry). If we receive your registration within a week of the course start date, we will retain your copy of the form in our main office (50 Coffey Hall) for pick up. Although short course dates and times are published, locations are revealed only on completed registration forms. If a course is cancelled, we will attempt to contact all registrants and process refunds.

REFUND POLICY

No refunds will be made after the course has begun. You may request a refund in person or by mail, but you must return your copy of the registration form. Please allow 2-3 weeks for processing refunds or credits. ▲



SPCS SHORT COURSE REGISTRATION FORM

FALL 1989

STATUS

- (1) U of M student ID #: _____
- (2) U of M faculty/staff Dept: _____
- (3) Non-U of M User Employer: _____

METHOD OF PAYMENT

- cash
- check
- U of M Budget _____

NAME _____

ADDRESS _____

(campus/ _____

U.S.) _____

DEPARTMENT _____

PHONE _____

Course Number	Course Name	Dates	Fee	Location (SPCS will complete)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

SPCS Use Only: Date _____ Receipt Number _____

Short Course Descriptions

001 USER ORIENTATION

OCTOBER 5, 2 TO 4 PM

FREE 125 COFFEY HALL

Introduction for new and prospective users to our facility, with a brief description of the available hardware and software and tour of the Computer Center.

100 CMS INTRODUCTION

OCTOBER 9 AND 11, 2 TO 4 PM

Introduction to CMS (Conversational Monitor System), the operating system on the IBM mainframes at SPCS and Carlson School of Management. Topics include the full screen editor XEDIT, executing programs (examples in SAS, FORTRAN, NOMAD2), and basic communication with other users. \$10/\$15/\$20

110 CMS ELECTRONIC MAIL

OCTOBER 12, 2 TO 4 PM

NOVEMBER 1, 2 TO 4 PM

Introduction to electronic correspondence with computer users at SPCS and, via networks, worldwide. Among the accessible networks is BITNET, which includes 1127 research and educational institutions in Europe, Asia, the Americas, and Africa. No Charge

120 CMS BATCH

OCTOBER 19, 2 TO 4 PM

Presentation of the CMS BATCH processing facility. Learn about Job Control Language (JCL) for submitting programs to BATCH, the advantages of running BATCH programs, and special features of using BATCH. Prerequisite: CMS Introduction or equivalent knowledge. \$10/\$15/\$20

130 CMS UTILITIES

OCTOBER 17, 2 TO 4 PM

Learn how to use CMS utilities for doing the following tasks: inexpensive archival storage and retrieval of files, disk space and password management, querying the system for information, temporary disk usage, and others. Prerequisite: CMS Introduction or equivalent knowledge. \$10/\$15/\$20

140 CMS TAPES

OCTOBER 30, 2 TO 5 PM

Presentation of CMS tape management facilities. Topics include tape specifications, reading and writing standard labeled and unlabeled tapes, and tape positioning and formatting commands. Prerequisite: CMS Introduction or equivalent knowledge. \$10/\$15/\$20

150 CMS REXX

OCTOBER 31, 2 TO 4 PM

Introduction to writing macros in CMS programming languages REXX and EXEC2. Learn to make the power of these languages work for you -- save time, reduce errors, and relieve tedium. Previous programming may be helpful, but is not necessary. Prerequisite: CMS Introduction or equivalent knowledge. \$10/\$15/\$20

200 SAS/BASE

SEPT. 18 & 20; 2 TO 5 & 2 TO 4 PM

OCT. 16 & 18; 2 TO 5 & 2 TO 4 PM

Presentation of the essentials of SAS, a comprehensive statistical package that provides software tools for analysis, data storage and retrieval, report writing, general programming, and graphics. Prerequisite: CMS Introduction or equivalent knowledge. \$15/\$20/\$30

210 SAS/STAT

OCTOBER 20, 2 TO 4 PM

Presentation of the statistical analysis features of SAS, including correlation, regression, analysis of variance, and other exploratory data analysis and modelling techniques. Prerequisite: SAS/Base or equivalent knowledge. \$15/\$20/\$30

220 SAS/GRAPH

OCTOBER 24, 2 TO 4 PM

Introduction to SAS graphics capabilities for displaying data as 2-D or 3-D plots, charts (bar, block, pie, or star), tables, maps, contour plots, and viewgraph presentations. \$10/\$15/\$45

230 PC SAS OVERVIEW

OCTOBER 27, 2 TO 4 PM

Covers some of the basic features specific to the PC version of SAS. Prerequisite: SAS/Base or equivalent knowledge. \$10/\$15/\$45

300 YTERM

OCTOBER 13, 3 TO 4 PM

Demonstration of YTERM's terminal emulation capabilities as well as its features for transferring files between the SPCS mainframe and your PC and for printing mainframe files on a printer attached to your PC. SPCS distributes YTERM and highly recommends it to those who use their IBM PC's or compatibles as terminals for the SPCS mainframe. No Charge

310 TINCAN

OCTOBER 25, 3 TO 4 PM

Demonstration of TinCan's terminal emulation capabilities as well as its features for transferring files between the SPCS mainframe and your Mac and for printing mainframe files on a printer attached to your Mac. SPCS distributes TinCan and highly recommends it to those who use their Macintoshes as terminals for the SPCS mainframe. No Charge

320 PROCOMM

OCTOBER 23, 3 TO 4 PM

Demonstration of PROCOMM's terminal emulation capabilities as well as its Kermit features for transferring files between the SPCS mainframe and your PC. No Charge

400 NOMAD2

OCTOBER 26, 2 TO 3:30 PM

Introduction to NOMAD2, a database management system with powerful report writing and programming features. No Charge

Newsletter Index

We've compiled a list of still-current articles published in past newsletters. Most of these files are available on the SPCS Bulletin Board through the Project-Group Menu. Remember: you may read, print, and/or download files from the Bulletin Board. A limited number of back issues of SPCS newsletters are available in 50 Coffey Hall.

	ISSUE	PAGE		ISSUE	PAGE
CMS/XEDIT			SAS		
Command Changes	June 1988	1	MAINFRAME		
Enhancing Your PROFILES	March 1989	1	SAS/GRAPH Hints	March 1989	7
LINKACC Changes	April 1988	2	SAS Manuals	March 1989	6
New ACCSTAT Command	October 1987	1			
The Reconnected Message	March 1989	4			
COMMUNICATIONS			PC SAS		
Beyond BITNET	June 1988	8	Changes in Release 6.03		
BITNET Nodes	June 1989	4	PC SAS/GRAPH Available	April 1988	7
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CICNet Completed	June 1989	4	The SAS System for Personal Computers	March 1989	6
Electronic Communication (BITNET)	January 1989	11			
Electronic Postmaster	October 1988	1			
A History of BITNET	June 1989	1			
Internet and SPCS	June 1989	4			
PROJECT-GROUP Note Hints	June 1989	4			
TELNET and FTP (TCP/IP)	October 1988	3			
EQUIPMENT			SOFTWARE		
New Data Entry Equipment	October 1988	2	CMS 5.0	June 1988	3
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New Temporary Disk Allocation	October 1988	2	Is your Math Coprocessor running too fast?	June 1989	6
			NOMAD2 Version 4.5	January 1989	11
			SPSSx	October 1988	5
			TinCan New Release (3.0)	April 1988	5
			VMARCHIVE	January 1989	1
			VS PASCAL Available	January 1989	5
GENERAL INTEREST					
Care and Cleaning of the Micro Keyboard	March 1989	5			
Computer Viruses	January 1989	6			
Taking the Pain Out of Computing	June 1989	10			
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Questions? Ask ICON	June 1988	9			
SAS					
MAINFRAME					
LINKACC Changes	April 1988	2			
SAS Computer Based Tutorial Courses	April 1988	2			

STATISTICAL CLINIC

The Statistical Clinic, located in 133 Classroom Office Building on the St. Paul Campus, is staffed by graduate students of the School of Statistics and supervised by faculty members of the Applied Statistics Department. The staff of the Clinic aids researchers on questions of experimental design, analysis, and interpretation.

The Clinic is open year-round on weekdays from 9 to 4 (hours may vary according to the time of year). Facilities are ordinarily available on a walk-in basis, although appointments are recommended. Call 625-7030 to obtain exact hours or 625-3121 to make an appointment.

General Information

MAIN OFFICE	50 Coffey Hall	M - F	8:00 am - 4:30 pm	624-7788
HELP DESK	90 Coffey Hall	M - F	8:00 am - 5:30 pm	624-6235
	140 Blegen Hall	T Th	3:00 pm - 5:00 pm 9:00 am - 11:00 am	624-5278
STAT CLINIC	133 COB	M - F	call for hours	625-3121
MICRO LAB	B50 Central Library	M - F Sat Sun	8:00 am - 10:00 pm 10:00 am - 2:00 pm 6:00 pm - 10:00 pm	624-3269
DATA ENTRY	6 North Hall	M - F	8:00 am - 4:30 pm	624-7297
INTERACTIVE DIALUP				624-4220
OPERATIONS				624-3482
COMPUTER HOURS	From 8:00 am Monday until 4:00 pm Saturday (except 5:00 - 5:30 am Tuesday through Saturday) Sunday from 2:40 pm until 10:00 pm			

User rooms (90 Coffey Hall) are open during Computer Hours, but after 6:00 pm weekdays and on Saturday and Sunday, the outside doors to Coffey Hall are locked. To gain access after hours, enter the tunnel system through the St. Paul Central Library or through the St. Paul Student Center.



The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, national origin, sex, handicap, age, or veteran status.

ST. PAUL COMPUTING SERVICES

UNIVERSITY OF MINNESOTA
50 COFFEY HALL
1420 ECKLES AVENUE
ST. PAUL, MN 55108

EDUARD STADELMANN
HORTICULTURAL SCIENCE
305 ALDERMAN HALL
ST PAUL CAMPUS