

UNIVERSITY OF MINNESOTA

# ACS Newsletter

## Information Services

Volume 25, Number 5

Academic Computing Services

May, 1991

### For CYBER CA Users Only

The announcement in this issue should come as no surprise to our present CYBER CA users. ACS sent letters to CA account holders well before this issue was mailed, informing them that we will discontinue our NOS service in 1992.

If by chance our letter did not reach you, our apologies. Please call 626-1093 between 8:30 and 4:30 daily. We will send you a copy of the letter, along with other information concerning the conclusion of our NOS service.

More importantly, we will send you a conversion assessment form that we'd like you to fill out and return to us. We want—and need—this information to make the conversion from CYBER NOS as convenient as possible for the largest possible number of users. Watch for more information in future issues of this newsletter.

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**Help for  
Campus  
Dial-in users.**  
(See page 85.)

### NOS Will Go

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**A**fter two years of planning, ACS will make a long-expected change in its central computing services:

**On June 30, 1992, we will end our CYBER NOS service.**

By concluding our NOS service, we can improve other services:

- We can maintain and improve support for our growing community of UNIX and VMS users.
- We can improve network access to services across campus for users of workstations, micros, and UNIX and VMS systems.
- We can improve *information support systems* that enable the University community to access and use information from a wide variety of sources.
- We can improve applications of technology to support essential University initiatives such as community building and commuter-student support.

As most of our readers know, ACS has provided computing services on CYBER NOS systems for many years. In those years computing has changed rapidly; NOS does not provide many features that computer users have come to expect.

As a result, use of our NOS system has declined steadily for the last five years. Rather than support a system used by a dwindling number of users, we can better serve the University by concentrating on services, such as those mentioned above, that are of interest to growing numbers of students and researchers.

We at ACS will do our best to help NOS users convert their projects to other systems and to make the conversion as easy as possible.

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# ACS

## Academic Computing Services

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**Editors: Steven Brehe, Paula Goblirsch**

The *ACS Newsletter* is published monthly by Academic Computing Services of the University of Minnesota, Twin Cities.

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For a free subscription call (612) 625-7397, or send your name and address to the Computing Information Center, 1 Nicholson Hall, University of Minnesota, 216 Pillsbury Drive SE, Minneapolis, MN 55455. MAD@UMNACVX/MAD@VX.ACS.UMN.EDU. On-campus address changes *must* include your department name and address.

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## New ACM Algorithms on VX

Michael J. Frisch

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We keep on a VAX VX disk the ACM (Association for Computing Machinery) collected algorithms as published in the journal *ACM Transactions on Mathematical Software (TOMS)*, starting with algorithm 493 from March 1975. We recently added algorithms 679 to 686, published in the 1990 issues of TOMS. They are listed below.

To access the algorithms on VX, use the CALGOPL program that copies a single algorithm to your designated file. The command is:

```
$ CALGOPL number file
```

where *number* is the algorithm number from 493 through 686 and *file* is the name of the file to which the algorithm will be copied. The default type for *file* is .LIS and, if you don't supply a file name, the default name is *ALGnumber.LIS*.

For example, this command

```
$ CALGOPL 678 SAM
```

writes algorithm 678 on file SAM.LIS, and this command

```
$ CALGOPL 500
```

writes algorithm 500 on file ALG500.LIS.

We have added the line

```
ALGnumber
```

to the beginning of each algorithm to make it easier to check which algorithm you copied.

For more information about CALGOPL, see the on-line document obtained with the VX command

```
$ MOREHELP LIBRARIES CALGOPL
```

The journal *ACM Transactions on Mathematical Software* is available in the Computing Information Center, 1 Nicholson Hall.

<u>Algorithm</u>	<u>Volume.Issue</u>	<u>Lines</u>	<u>Description</u>
ALG679	16.1	23068	A Set of Level 3 Basic Linear Algebra Subroutines.
ALG680	16.1	215	Evaluation of the Complex Error Function.
ALG681	16.2	11564	INTBIS, a Portable Interval Newton/Bisection Package.
ALG682	16.2	3091	Talbot's Method for the Laplace Inversion Problem.
ALG683	16.2	4257	A Portable FORTRAN Subroutine for Exponential Integrals of a Complex Argument.
ALG684	16.3	3850	CS(1)- and CS(2)- Interpolation on Triangles with Quintic and Nonic Bivariates.
ALG685	16.4	8276	A Program for Solving Separable Elliptic Equations.
ALG686	16.4	3437	FORTTRAN Subroutines for Updating the QR Decomposition.

## NETLIB Public Domain Mathematical Software (Quarterly Update)

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**T**here are two locations that run the NETLIB electronic mail system for the distribution of the source code for public domain mathematical software. They don't have exactly the same software, although the differences are small and we have read that the system managers try to make them match up periodically.

The following has recently been added at [NETLIB@ORNL.GOV](mailto:NETLIB@ORNL.GOV).

**PVM** Software and paper on a parallel virtual machine and additional software environment for its use.

The following have recently been added at [NETLIB@RESEARCHATT.COM](mailto:NETLIB@RESEARCHATT.COM).

**AMPL/MODELS** Example model and data files for linear and nonlinear programming.

**CONTIN** Methods for continuation and limit points, notably version 6.1 of PITCON by Werner Rheinboldt and John Burkardt.

**FP** Floating point arithmetic.

**NEWS** Eric Grosse's Netlib News column for na-net, SIAM News, SIGNUM Newsletter.

**PAPERS** Miscellaneous preprints, user manuals, and other documents from AT&T.

**RESEARCH** Miscellaneous software from Computing Science Research Center, AT&T Bell Labs, Murray Hill, NJ.

**1127** Miscellaneous software from Center 1127 (Computing Science Research) at AT&T Bell Labs, Murray Hill, NJ.

The following have recently been added to both [NETLIB@ORNL.GOV](mailto:NETLIB@ORNL.GOV) and [NETLIB@RESEARCHATT.COM](mailto:NETLIB@RESEARCHATT.COM):

**LANZ** Large sparse symmetric generalized eigenproblems.

**PASCAL** Codes from J. P. Nash, "Compact Numerical Methods for Computers: Linear Algebra and Function Minimization," 2nd ed.

**SPIN** Simulation and automated validation of communications protocols from Gerald J. Holtzman's work, "Design and Validation of Computer Protocols."

To find out more about accessing these files and other NETLIB libraries, use the following command on the VAX VX:

```
$ LISTDOC NETLIB
```

### Help for Campus Dial-in Users

*Paul Tranby*

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**A** number of users have recently reported having difficulties when using their ITE phones or ADI (Asynchronous Data Interface) units to communicate with the various dial-in services on campus. We found that most of these problems were caused by parity mismatches somewhere in the user's communications path.

You can avoid many of these problems by setting the communications parameters (in your microcomputer software or terminal and in your ITE/ADI interface) to 8 databits with no parity and then dialing destinations also configured for 8 databits and no parity.

Normally the Telecommunications department charges \$10 to change the default settings in your ITE/ADI interface to 8 databits with no parity.

For a limited time, however, users can now get this done for free. To take advantage of this free offer, call the ACS HELP-Line (625-5592) before the end of June.

For more information type LISTDOC on VX. Then, within ListDoc, select the CHANGES category and then open the ITEPHONE document that appears in the CHANGES menu.

On the UX computer, type **help general itephone**.

On the CYBER CA, type **WRITEUP,ITEPHON**.

### New Editions of VMS and UNIX Introductions Coming This Fall

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**T**his fall ACS will publish new, updated editions of our *Introduction to VMS Computing* and the *Introduction to UNIX Computing*. Both volumes will be available in the bookstores in September. Each *Introduction* will be published in two forms: in bound volumes and in unbound three-hole editions, ready for a three-ring binder.

Faculty who make either *Introduction* a required text in their courses can request a free desk copy. Call 626-1093 after you've placed your order with the University bookstores.

Expect the price of each volume to rise somewhat. We have previously sold both *Introductions* well below cost. We will continue to subsidize these manuals, but we cannot absorb as much of the cost as we have in the past. At this writing we don't know precisely how much the two *Introductions* will cost.

Because our CYBER CA service is scheduled to end in 1992, we will not publish a new edition of the *Introduction to CYBER NOS Computing*. The current fifth edition is still available in University bookstores.

## 1981 to 1991: Reviewing Our Past Issues

*Steven Brehe*

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**O**bserving our twenty-fifth year of publication, we've been looking back over past issues of this *Newsletter* (in articles published in our January and March issues), and we've worked our way up to the last decade, from 1981 to the present.

Looking back over our twenty-five volumes, it's easy to see that it's in this last decade that the most sweeping changes have occurred. Some of them were very good; some weren't. All in all, it was an interesting but difficult decade.

### Micros and Supercomputers

In 1980 our supercomputer and microcomputer services were still just a small part of University computing. That was destined to change, but there was no sign of that at the beginning of the Eighties.

In 1981, three full-time staff made up our Microcomputer Group. These three provided daily consulting for users of the Terak (remember the Terak?) and Apple II. In October 1981, ACS opened the University's first two public micro labs, equipped entirely with Teraks. Users paid a \$10 lab fee each quarter.

In February of '82, we began supporting the Xerox 820 micro and made COM, a communications program written originally for the Terak, available for the Xerox and the Apple II. In July of that year, we also announced versions of COM for other brands of micros, including the Z-89, the Osborne, and the Vector Graphics.

By October of '82, according to our issue that month, there were an estimated one thousand microcomputers on campus. It seemed like a lot then.

Also in August of 1981, we announced the purchase of the CRAY 1, to be installed in September, making Minnesota the first American university to acquire a supercomputer. We offered the first short courses on using the CRAY in November '81. In 1982 we published the first all CRAY issue (November) and began a series of articles, increasingly long and technical, on the CRAY and its software.

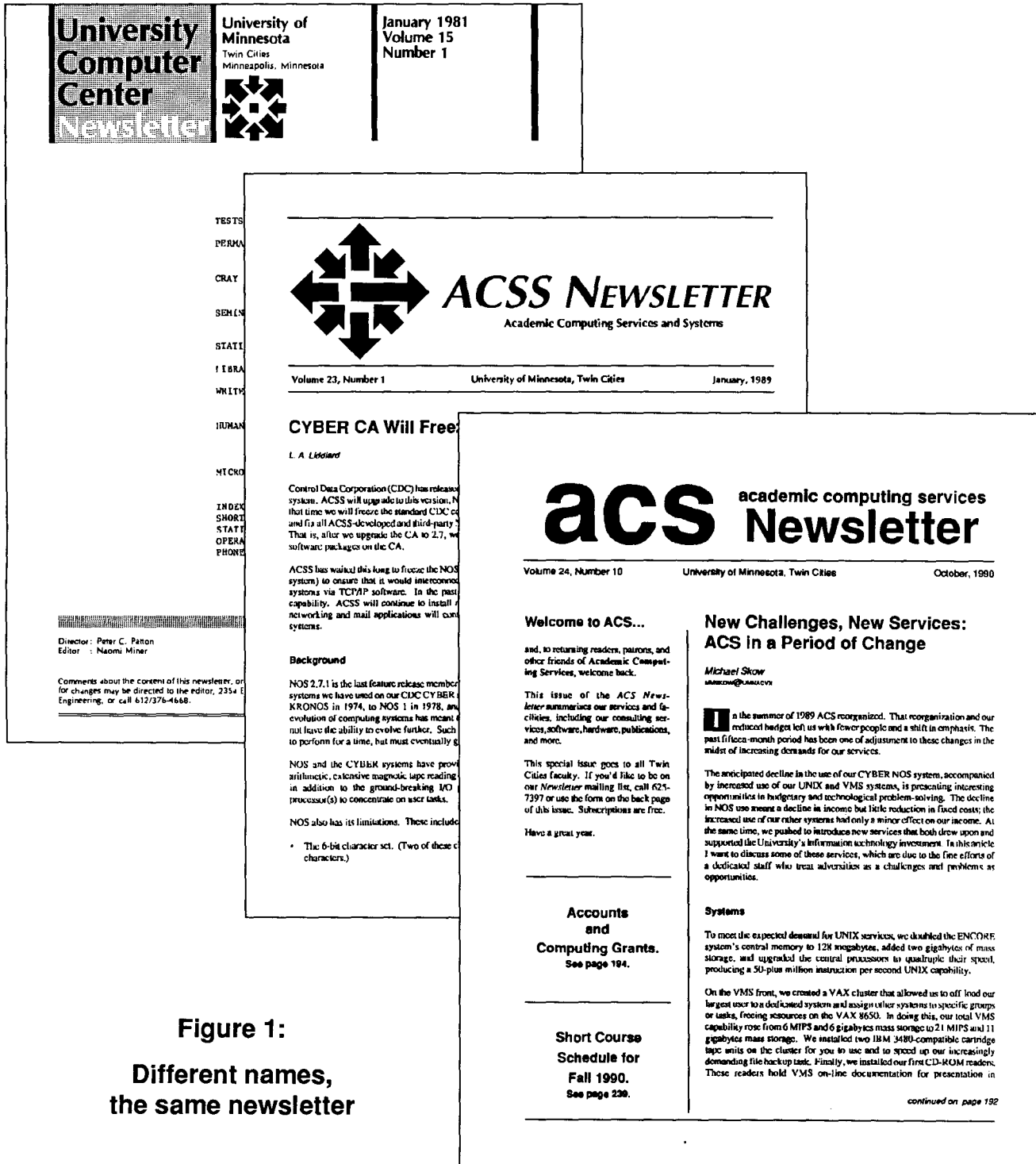
As supercomputing and microcomputing services grew and became more important, they eventually spun off as separate departments. As that happened, this department changed repeatedly, and UCC became ACSS (in January 1986, when supercomputing became a separate unit), and ACSS became ACS (in September 1989, when microcomputing separated). As our department changed, we changed our newsletter. (When you get very good at something, it's important to keep in practice; see **Figure 1**.) Meanwhile, new applications of the central systems came on the scene, or became more important, such as humanities computing, artificial intelligence, and electronic mail.

### Money

As in most departments at the U, ACS budgets became increasingly tighter in the 1980's, and our department found it necessary to do more with less and to charge for services that had previously been free. Financial difficulties came at ACS from two directions, the University's own financial problems and declining income from our central systems.

The early Eighties were difficult years for the U financially and that was reflected in our *Newsletter* in a number of ways. In May and July of '82 we announced that we would thereafter charge for computing short courses,

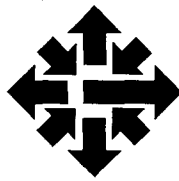
*Newsletter continued on page 88*



**University  
Computer  
Center  
Newsletter**

University of  
Minnesota  
Twin Cities  
Minneapolis, Minnesota

January 1981  
Volume 15  
Number 1



## ACSS NEWSLETTER

Academic Computing Services and Systems

Volume 23, Number 1

University of Minnesota, Twin Cities

January, 1989

### CYBER CA Will Free

L. A. Lédard

Control Data Corporation (CDC) has released a new version of its CYBER CA system. ACSS will upgrade to this version. At that time we will freeze the standard CDC CA and fix all ACSS-developed and third-party CA. That is, after we upgrade the CA to 2.7, we will freeze the CA. CA is a software package on the CA.

ACSS has waited this long to freeze the NOS system to ensure that it would interconnect systems via TCP/IP software. In the past capability. ACSS will continue to install networking and mail applications will connect systems.

#### Background

NOS 2.7.1 is the last feature release member systems we have used on our CDC CYBER. KRONOS in 1974, to NOS 1 in 1978, and evolution of computing systems has meant that we have the ability to evolve further. Such to perform for a time, but must eventually give up.

NOS and the CYBER systems have provided arithmetic, extensive magnetic tape reading, in addition to the ground-breaking I/O processor(s) to concentrate on user tasks.

NOS also has its limitations. These include:

- The 6-bit character set. (Two of these characters.)

## acs academic computing services Newsletter

Volume 24, Number 10

University of Minnesota, Twin Cities

October, 1990

### Welcome to ACS...

and, returning readers, patrons, and other friends of Academic Computing Services, welcome back.

This issue of the *ACS Newsletter* summarizes our services and facilities, including our consulting services, software, hardware, publications, and more.

This special issue goes to all Twin Cities faculty. If you'd like to be on our *Newsletter* mailing list, call 625-7397 or use the form on the back page of this issue. Subscriptions are free.

Have a great year.

**Accounts  
and  
Computing Grants.**  
See page 194.

**Short Course  
Schedule for  
Fall 1990.**  
See page 230.

### New Challenges, New Services: ACS in a Period of Change

Michael Skow  
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**I**n the summer of 1989 ACS reorganized. That reorganization and our reduced budget left us with fewer people and a shift in emphasis. The past fifteen-month period has been one of adjustment to these changes in the midst of increasing demands for our services.

The anticipated decline in the use of our CYBER NOS system, accompanied by increased use of our UNIX and VMS systems, is presenting interesting opportunities in budgetary and technological problem-solving. The decline in NOS use means a decline in income but little reduction in fixed costs; the increased use of our other systems had only a slight effect on our income. At the same time, we pushed to introduce new services that both drew upon and supported the University's information technology investment. In this article I want to discuss some of these services, which are due to the fine efforts of a dedicated staff who treat adversity as a challenge and problems as opportunities.

#### Systems

To meet the expected demand for UNIX services, we doubled the ENCORE system's central memory to 128 megabytes, added two gigabytes of mass storage, and upgraded the central processors to quadruple their speed, producing a 50-plus million instruction per second UNIX capability.

On the VMS front, we created a VAX cluster that allowed us to off-load our largest user to a dedicated system and assign other systems to specific groups or tasks, freeing resources on the VAX 8650. In doing this, our total VMS capability rose from 6 MIPS and 6 gigabytes mass storage to 21 MIPS and 11 gigabytes mass storage. We installed two IBM 3480-compatible cartridge tape units on the cluster for you to use and to speed up our increasingly demanding file backup task. Finally, we installed our first CD-ROM readers. These readers hold VMS on-line documentation for presentation in

continued on page 192

*Newsletter continued from page 86*

essential manuals, and some other services. (In our March '83 issue, in a report on our 1983 users' meeting, we're told users complained about the new charges for computing services.)

In our January 1983 issue, Peter Patton, our director at that time, pointed out that "funding from the University has always been limited to educational computing, and recent University retrenchment has eliminated funds for research grants. . . ." He expressed the hope that other new services, like the CRAY, could bring in income to support services for all users. In the same issue, Lawrence Liddiard noted that University retrenchment had caused a deficit for ACS in fiscal 1982. ACS responded in a number of ways, such as selling its VAX/UNIX system to eliminate the deficit, and postponing the purchase of a high-speed laser printer.

Meanwhile, as the microcomputer became more popular and as prices of all computing equipment dropped, the considerable income ACS generated by selling computing time to businesses and other non-University organizations began to decline in the mid-Eighties. Many of our customers in the private sector simply went out and bought their own systems. Consequently, the CRAY did not become the bountiful source of income we had hoped it would be, and the once-plentiful income from our CYBER services declined slowly and surely. This meant trouble, since in 1983 50 percent of ACS's income came from non-University computing, and paid for many free services and important initiatives in software development and consulting.

As a result, ACS was forced to cut back on many services that didn't pay for themselves. A good example is in our humanities computing support. By October '81, our humanities computing staff had grown to one full-time and three part-time staff for consulting and programming. By the late Eighties, our humanities staff had been reduced to one part-time worker. Severe reductions were also made in more traditional computing areas, such as graphics and programming languages, and in service groups such as consulting and documentation.

By 1991, then, ACS was a much smaller organization than it had been a decade before. Still, in spite of reductions in budget and staff, we managed to add new services as they became important to our users, including UNIX computing, INFO, electronic mail, support for artificial intelligence and micro-mainframe communications software, support for statistical and database packages for microcomputers, and others. Like many other units within the U, we were learning to do more with less.

## The Changing Role of Central Systems

Over the years people have made a number of predictions and projections about computing; some came true, some didn't. For example, some years ago it was widely believed that technology would usher in a paperless office system. So far that hasn't happened—indeed, if anything, computers and photocopiers have led us to consume *more* paper.

Another popular prediction ten years ago was that the medium-sized central system, the "mainframe," would disappear, squeezed out by increasingly powerful personal workstations on the one hand and by supercomputers on the other.

So far it hasn't happened that way at Minnesota nor at any other university we know of, in spite of the widespread and growing use of the microcomputer and the supercomputer. Instead, demand for computing services of *all* kinds has increased rapidly at the University.

It's certainly true that central computing once accounted for *all* computing and now accounts for just a portion of total computer use. But, while ACS now accounts for only one slice of the total computing pie, the pie is many times larger than it used to be. In other words, our portion is much larger than total mainframe use was a decade ago.

How much has use of central system computing grown in the last decade? We can get a rough measure by comparing a few simple figures. In February 1981, account holders on our two CYBER NOS systems (the only central systems we operated at that time) consumed a total of 1,460,415 system resource units. By February 1991 total use of four ACS systems (UX, VX, NV, and CA) had



grown to 5,366,578 units, with the ENCORE UX leading (3,688,808 units) and the VAX VX coming in second (1,287,942 units). Similarly, in February 1981 connect time on both CYBER systems totaled 16,996 hours for 41,279 terminal sessions; in February 1991 connect time on the four systems totaled 32,884 hours for 70,236 sessions. (All figures exclude staff use. February 1981 figures were reported in our April '81 issue.)

As you can see, in the last ten years connect time has almost doubled, while consumption of processing units almost quadrupled, indicating that central system users are performing more processing-intensive tasks. In part this is so because central system computing now routinely involves more complex software than was available a decade ago. (One example: Full-screen editing, which was not available on our CYBERs ten years ago, consumes more resource units than line editing.)

## Our Users Change

As the uses of central systems have changed, our users have changed, too. They don't use central systems for text processing very much any more; they can do that on their micros. They *do* use electronic mail a great deal and still use central systems heavily for the statistical analysis of large data files.

We can conveniently trace some changes in our user community by looking at the number of faculty and graduate students who eight years ago received University research computing grants to use on Twin Cities campus central systems. In 1983-84, the first year these grants were available, 1379 graduate students and 998 faculty received them. In 1989-90, the last year for which complete figures are available, 688 grad students and 1604 faculty received these grants. (These figures do not include those who have funding from other sources, nor those who have the smaller University POPmail grants.) ACS users made up 77 percent of the 89-90 grad student grant recipients and 62 percent of the faculty recipients.

As you can see, the number of graduate student researchers has decreased sharply, thanks to the supercomputer and, especially, the microcomputer. Many grad students simply find it more convenient to complete their thesis

work on micros. Meanwhile, the number of faculty researchers using University research grants on central systems has increased.

Overall, the total number of computing grant recipients on all University systems has held steady, roughly, while the total number of grant recipients on ACS systems has declined somewhat. At first this would seem to contradict the figures cited earlier that show increasing use of our systems. But faculty run larger, more processing-intensive jobs than grad students and often have several large projects on our systems at the same time.

## Coming Change

As you can see, ACS has changed in ways we could not have predicted ten years ago. When ACS offered micro-computer and supercomputer services in the early Eighties, we could not anticipate how important those services would become, nor that they would eventually grow to become separate departments.

Nor could we have anticipated how the use of our central systems would change. In August of 1981 we offered the VMS operating system for the first time on a VAX 11/780 minicomputer. In October 1986 we announced our ENCORE UNIX service. In 1981 we could not have predicted that, ten years later, VMS and UNIX would be our most heavily used systems, nor that we would be on the verge of phasing out our CYBER NOS services.

Similarly, in 1991 it's difficult to predict what computing will be like at the University in 2001. There are certainly lots of important changes on the horizon. We know that this year a permanent Chief Information Officer will be selected, and that the CIO will establish new directions for all University computing centers. We know that technology will continue to change and advance, in some ways that cannot be anticipated now. Judging from our experience in the last decade, we could hypothesize that any prediction based on the assumption that present trends will continue is almost certainly wrong. Still, with our twenty-fifth year of publication marked by state budget shortfalls and University reallocations, it's probably safe to predict that we're in for another very interesting decade.

## Short Courses

# 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 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](mailto:classes@umnacvx) or [classes@vx.acs.umn.edu](mailto: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.

### Operating Systems

#### 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 central systems.

#### Introduction to NOS/VE Part 2 (HSCS)

*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)

*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.

### Graphics

#### PicSure Interactive Graphics (HSCS)

*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.

### Other

#### 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.

### MinnesotaMEDLINE

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

#### Basics of MinnesotaMEDLINE Searching (HSCS)

*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)

*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.

## ACS Hours for May

### Systems

Our systems will run in unattended mode from midnight Sunday, May 26, until midnight Monday, May 27.

It is unlikely that any tape requests or printing will be processed during these hours. Normal operations on all systems will resume at midnight Monday, May 27.

At all other times, our system hours will be the normal hours listed on the inside back cover of each issue of this *Newsletter*.

### Offices

Our Lauderdale offices (including Engineering Services) and our consulting offices will be closed on May 27. Our facilities in 1 Nicholson Hall will also be closed.

At all other times we will observe our normal office hours: the Lauderdale front desk and Engineering Services will be open from 8 to 4:30 Monday through Friday. Normal hours for our consulting offices and the Computing Information Center are listed in the inside back cover—the Help Page—in each issue of this *Newsletter*.

## ACS Conventions

Throughout this and other ACS publications, we have adopted these conventions:

- Messages and prompts from the ACS computers appear in *plain type*, like this.
- Words that the computer systems replace with a specific name, value, or other information appear in *italic type*, like this.
- Commands you type at your terminal keyboard appear in **bold face type**, like this.
- Words that must be replaced by a specific name, value, or command that you type in appear in ***bold italic type***, like this.
- Comments to interactive sessions and program files are enclosed in { curly braces, like this }.

Here's an example:

**SAVE, *filename***

is a command you type in. You type **SAVE** and replace ***filename*** with the name of your file. The system may respond with the message

```
filename ALREADY PERMANENT  
{ An example of a system message. }
```

where *filename* will be replaced by the name of the file you attempted to save.

- The symbol <CR> refers to the carriage return (or RETURN) key on the terminal. The <CR> serves as a terminator for commands you type at your terminal. In most cases we do not show <CR>; we assume you know to type it after every command.

## Free Documentation for ACS Central Systems

Paula Goblirsch

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ACS publishes a number of free documents that you can get by visiting the ACS Computing Information Center in 1 Nicholson Hall, by calling 626-1093, or sending mail to pmg@umnacvx or pmg@vx.acs.umn.edu. The following is a partial list:

### General Information

Artificial Intelligence Services  
Central and Network Configuration Diagram  
Command Cross-Reference Guide  
Computing Grants on Central Systems  
Computing Information Center and Documentation Services  
Consulting Hours and Locations  
Dec Systems Support from ACS  
Documentation Directory  
Free Central System Computing Courses

Getting Started at ACS  
Graphics Software and Services  
Learning About LOOKUP  
Liberal Arts Computing Services  
Mathematics, Engineering, and Statistics Software  
Phone Numbers  
Public Labs  
Software on ACS Central Systems

### Communications

LUMINA: Campus ITE Dial-up for ProComm  
LUMINA: Campus ITE Dial-up for TinCan 3.0  
LUMINA: Hayes-compatible Dial-up for ProComm  
LUMINA: Hayes-compatible Dial-up for TinCan 3.0  
Terminal Access to ACS Central Systems  
Transferring Files Using FTP  
Transferring Files Using Kermit

Using a Macintosh as a Terminal with the VAX VX  
Using a PC as a Terminal with the VAX VX (Kermit Ext)  
Using a PC as a Terminal with the VAX VX (Kermit Std)  
Using a PC as a Terminal with the VAX VX (NSCA Telnet Ext)  
Using a PC as a Terminal with the VAX VX (NSCA Telnet Std)  
Using a PC as a Terminal with the VAX VX (ProComm Ext)  
Using a PC as a Terminal with the VAX VX (ProComm Std)

### UX Central System

A Comparison of the VMS EDT and UNIX vi Editors  
ENCORE/UNIX Access  
EX/VI Reference Summary  
GNU Emacs Reference Card  
UNIX Equivalents to NOS Commands  
Using MAIL on the ENCORE  
VIP Quick Reference Card

### VX/VZ Central Systems

Lotus 1-2-3 on VAX VZ  
Moving SPSSX System Files from CA to VX  
RATS 3.11 on VX and VZ  
SPSS 4.0 on VX and VZ  
Tools for Administrators of VX Instructional Users  
Using MAIL on the VAX  
VAX/VMS Access  
VMS Equivalents to NOS Commands

## Public Labs

Location	Central System Printing	Terminals	Micros	Phone Numbers
<b>East Bank</b>				
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
<b>St. Paul</b>				
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
<b>West Bank</b>				
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			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

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## 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

### Supercomputer Center

3030 SCC, 1200 Washington Ave. So.  
626-0808 9 am to 4 pm, Monday through Friday (Questions answered on a limited basis 24 hours a day.)

## 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.

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## 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	Info/Public Information Service	626-1527
FAX	626-7440	LaudCF: Computer Consoles	626-0550
Director—Michael Skow	625-6349	File Restoration	626-0595
Deputy Director—Lawrence Liddiard	625-4016	Magnetic Media Lib/Operations (9 am-3 pm)	626-1838
Adm. Assistant Dir—James Foster	625-1511	Operations Coordinator	626-1646
Access: ACS systems (UX,VX,VZ,CA)		Services (tapes, laser disks, CD ROMs, Xerox, plotters) Supervisor	626-1661
3/12/2400 bps + 7/Even/1	626-1630	Users' room	626-0386
12/2400 bps + 8/None/1	626-1631	Networking—Paul Tranby	626-0815
Access: All campus systems		Newsletter and Publications:	
1200 bps 8/None/1	626-1200	ACS newsletter subscriptions	625-7397
2400 bps 8/None/1	626-2400	Technical Publications—Steven Brehe	626-1828
9600 bps 8/None/1	626-9600	NOS Systems—David Bianchi	626-1827
Accounts: (8 am-12 pm, 1-4:30 pm)		Operations, Asst Director-Richard Folden	626-0031
ENCORE, VAX, CYBER	625-1511	Programming Environments—Jim Miner	626-1091
Assistance and Information:		Shuttle Service	625-9525
HELP-Line (including Graphics, Databases, Statistics Packages, and Text Processing)	626-5592	System Status (recording) status and hours	626-1819
Equipment repair	625-1595	UNIX systems—David Bianchi	626-1827
Computing Information Center	625-7397	User Services—Richard Hotchkiss	625-0795
Short Course Registration	626-0032	VMS Systems—Marisa Riviere	626-0268
Artificial Intelligence	625-8332		
BITNET/Electronic mail	625-1543		
Faculty Instructional Computing	626-0200		
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		

### Other University Computing Services

Health Sciences Computing Services	625-5444
Microcomputer and Workstation Networks Center	625-1300
St. Paul Computing Services	624-7788
LUMINA	625-6009
Supercomputer Center	626-1888

## 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 user name. 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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Room \_\_\_\_\_ Building \_\_\_\_\_

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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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Address \_\_\_\_\_

### **University of Minnesota Affiliation**

Department

Faculty

Staff

Student

Alumni

Other

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