UNIVERSITY COMPUTER CENTER

UNIVERSITY COMPUTER CENTER, UNIVERSITY OF MINNESOTA-TWIN CITIES, MINNEAPOLIS, MINNESOTA

CONTENTS

DEADLINE FOR OCTOBER NEWSLETTER: SEPT 23

READERS ARE INVITED TO SUBMIT ARTICLES

BULLETINS

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A salute to the Northwestern University Computing Center programmers, Dave Slate and Larry Atkin, whose CHESS 4.6 captured the World DP Chess Crown in Toronto in August. The Northwestern team beat 15 competitors, including the Russians who previously had held the championship. The new winner used a CDC Cyber 176 mainframe.

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UCC newsletter
VOLUME 12 NUMBER 9 SEPTEMBER, 1977

Editor : A. Koepke

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, 373-7744.

from the assistant director's desk

The beginning of the school year is a good time to discuss with you the resources available at the University Computer Center. Remember that UCC staff members work not only to provide computing capacity but also to make this capacity easy to use. Therefore we offer instruction, documentation, consulting and libraries (collections) of programs, subprograms, and processors you may need.

We offer short, free, non-credit courses varying in length from two hours to twelve hours. Call (612)373-7744 for a course schedule, save page nn of this newsletter, or issue the command:

```
WRITEUP,CLASSES.
```

to get a copy of the latest course list.

In addition to the scheduled courses, we will make presentations on request for your own scheduled classes. We will also consider scheduling additional short courses at your site if ten or more of you cannot easily come to us.

We have produced several video tapes to help you review material at your convenience. Cassette copies are available in each of the University's Learning Resource Centers. More tapes are in production; the command:

```
WRITEUP,VIDEO.
```

will give you the latest information on available tapes.

We offer tutorial documentation as well as reference material. Some of this is free, some is available for the price of the printing. The command:

```
WRITEUP,DOCLIST.
```

will give you instructions for accessing our lists of published (non-machine retrievable) documentation. Many documents are available as textfiles on the computer and may be listed at your interactive terminal (short files), at the nearest of the medium-speed RJE terminals, or at the high speed sites (short and long files). Enter the command:

```
WRITEUP,INDEX.
```

to get the list of those textfiles.

A few words of clarification may be helpful. We use the word "writeup" in small letters to refer to a description published in printed hard-copy and distributed by the UCC Reference Room or available free in 140 ExpEng. An example is "For information about using the FORTRAN subroutine MXLNEQ, get a copy of the writeup MXLNEQ". However, when "WRITEUP" appears in all capital letters, for example:

```
WRITEUP,ABCDEFGH.
```

it means "enter the command WRITEUP in order to print out the description of the utility ABCDEFGH; this description is a machine retrievable textfile". The list retrieved by the command:

```
WRITEUP,INDEX.
```

tells you the names of only the machine retrievable documents, while the list retrieved by the command:

```
WRITEUP,DOCLIST=FREEPUB.
```

tell you the names of the hard-copy "writeups" that we print for your use.

If you attend our courses, read the relevant documentation, write a program, set up a job, and run the job and it fails, what then? Consulting help is not far away. The best help is available at the face-to-face consulting desks in 140 ExpEng and at Lauderdale, since you and the consultant can discuss your problem. However, if you cannot get to the consultant, you may call the Help-line, (612)376-5592, and a consultant will try to assist you over the phone. Please remember however, that the Help-line consultant is on duty primarily to help users who are not on campus. Another word: student users doing class problems are expected to seek assistance from their instructors or TAs. UCC consultants are not permitted to help a student do homework!

Consulting is available in 140 ExpEng daily, 9AM-5PM and 7PM-9PM, as well as during some week-end hours; at Lauderdale, four (4) hours of consulting are scheduled on weekdays. Statistical package consulting is also scheduled in 140 ExpEng. (Please see page nn for a statement on our statistical package consulting policy.) The Help-line is staffed, 9AM-5PM, weekdays only. Issue the command:

```
WRITEUP,CONSKED.
```

to retrieve a full copy of the consulting schedule. (This requires a 132 character wide-line printer.)

Recent news from UCC comes to you in this publication, the UCC Newsletter. Very recent news and emergency information, particularly of an ephemeral nature, is issued as a NOTE ("sysnote", we sometimes call it conversationally). Give the command:

```
WRITEUP,NOTE.
```

and you will receive all of the recent notes, the most recent appearing first. If you are at an interactive terminal you may stop the printing of the list of notes when you have seen all you wish to.

Instruction, documentation, consulting, and news! These make up a part of the service we hope will help to make UCC facilities easy to use.

At another time in this place I will discuss other services and other issues with you.

T.D. Hodge, 373-4599

POLICY FOR USERS OF STATISTICAL PACKAGES

In the past years, we have helped users set up their jobs to use the statistical packages. Quite frequently, this help extended to the statistical analysis itself, what programs should be used, and how to interpret the results. Over the years this has led to an extensive committment of UCC staff and time. We do not extend this level of help in other areas. In fact, our policy has long been that users develop basic computer knowledge and do their own programming and running of jobs. We help with our training short courses and with consulting when problems arise. We have come to realize that we must limit our aid to statistical package users in the same way; that it is not our mission to provide ground level aid.

On the other hand, the Applied Statistics Department of the University provides a wide range of statistical consulting services. The vehicles for these activities are the Statistical Center and the Statistical Clinic. The Clinic is staffed by graduate students in the School of Statistics, and offers general advice on the design and analysis of statistical studies. This advice often includes information on the choice and use of statistical computing programs and packages. If you need assistance in statistical design or analysis, visit the Clinic (125C Classroom Office Building, St. Paul) or call 376-3845 for an appointment. Information about the services of the Statistical Center may be obtained from Professor Frank Martin, 373-1048.

Suggestions for use of UCC facilities:

PURCHASE the BMD, BMDP, or SPSS manuals, or the SPSS Primer. The Primer is easier to start out with and more compact to carry around. These are available at the University's bookstores.

ATTEND the UCC free short courses in the use of the computer and the use of Statistical Packages. The course schedule is available at the UCC Reference Room in the Experimental Engineering Building or you may call 373-7744.

WRITE your program following the examples shown and described in your manuals.

KEYPUNCH your program, following the instructions you can learn by viewing the videotape on keypunching which is available in all of the Learning Centers (Walter Library, Diehl Hall, Coffey Hall, and at all coordinate campuses). You may purchase keypunch service at:
460 AdminServ, St. Paul (373-4553)
6 North Hall, St. Paul (373-0987)
86 BA Tower, West Bank (373-9790)
HCS, East Bank (373-7714).

RUN your program.

DEBUG your program, using your Primer or Manual. Do not be surprised if your program does not run the first time. It happens to all of us.

SEE A CONSULTANT if you encounter an error condition you cannot understand. Be sure to take to the consultant your output listing, your copy of the Primer or Manual, and your data. If your data is contained in a large deck of cards, you may wish to bring a listing of the data instead of the cards. Consultants are available in 140 Experimental Engineering on the East Bank, at SSRFC in 25 Blegen Hall on the West Bank, and in 125F Classroom Office Building in St. Paul.

For further information about using the UCC computers or about UCC documentation and courses, see the staff in the UCC Reference Room. If you have questions that you can find answers to nowhere else, call the HELP-line, 376-5592.

Contract consulting (at UCC) is available by contacting Jim Johnson, 376-1764.

PLOTS

Shorter plots are desirable

Recently, users have been running a number of long plot jobs on the Statos 31 plotter. We have been having a number of difficulties with this older plotter and these long plots have caused even more problems. There seems to be a good chance that a long plot will not run correctly the first time and will have to be re-run, with a resultant waste of paper and the computer operator's time.

Other problems related to this are the possibility of running out of paper when near the end of the roll and the occurrence of a disk track limit while the plot is being generated. We do not now have a foolproof way to tell how long a plot will be before it is plotted. The amount of disk space available for a job varies widely from hour to hour so a track limit may occur without warning and may not repeat.

If a track limit occurs with shorter plot files, there will be less to re-run that with a single large plot file (we do not give credit for track limit errors). If a plotter hardware problem occurs, or the plotter runs out of paper, a smaller plot file will be easier to re-run than a longer one.

The problem of long plots may be compounded when the new Varian plotter is brought into service. It can accept 200 dot/inch plots which have 4 times as many dots as 100 dot/inch plots. Thus, we strongly recommend that plots be kept as reasonably short as possible and that large batches of plots from a single job be avoided. We reduced our setup charge to $.25 on July 1 to help keep costs down. So keep your plot files short and you will be happier with the results, and we will, too.

M.J. Frisch, 376-1636

multreg

A new version of MULTREG now available

A new version of MULTREG (version 3.2) is now available on the CDC 6400 and will soon be available on the Cyber 74. On MERITSS, access this program by:

```
X,DO,MULTREG.
```

Version 2.1 can still be accessed on MERITSS by:

```
X,DO,MULTREG(VER=2)
```

On The Cyber 74, MULTREG is accessed by:

```
X,RFL,45000
X,FETCH,MULTREG
X,MULTREG
```

MULTREG is a highly flexible, primarily interactive program for multiple regression problems. New features in Version 3.2 include weighted least squares, the Furnival and Wilson leaps and bounds algorithm for finding the best few subsets, an improved transformation capability, the ability to delete cases, user control over parameters such as plot size for residual plots, and pivoting tolerance. Also, Version 3.2 can accept data from a formatted file via a new "FREAD" command. In all, about 10 commands have been added and another 10 have been modified.

A new manual (Version 3.) is in preparation and will be available before fall quarter. In the meantime, documentation for the program can be obtained via the HELP and MESSAGE commands in MULTREG. Additional information about a particular command is obtained by typing the name of the command followed by HELP. For example, "READ HELP" gets information about the READ command used for reading unformatted data files.

Alternatively, on MERITSS, the HELP file (about 800 lines long) could be listed. Do this by entering:

```
X,FETCH,REGHELP
X,COPY,REGHELP
```

For further information, please contact Sanford Weisberg, Department of Applied Statistics, 373-1068.

autodivert

Change in autodivert limits

At 8:00 AM on Monday, September 19th, we will increase the autodivert limits enforced at the 'open shop' 1004 RJE terminals. A study conducted on the usage of this feature has shown that this increase in limits will:

1. Decrease by roughly 50% the number of autodiverts, since most outputs currently diverted are only slightly larger than the present limits.

2. Create less confusion for users who will now have fewer outputs diverted, and for operations personnel who will have less of these outputs to distribute.

3. Help alleviate the long waits some users have experienced before their diverted output prints at an alternate site.

The sites where autodivert is enforced and their new (decimal) limits in PRUs (sectors) include:

site	locations	8AM-6PM	6PM-4AM
4B	130 ExpEng	200	500
4C	1-752 HS-A	200	700
4E	FrontH	200	500
4I	TerrH	200	500
4K	1009 SocSci	300	1000
4V	38 ElectE	200	500
4W	N640 EltH	300	1000
4X	167 SocSci	200	500
4Z	S191 KoltH	200	600
40	24 NorH	200	600
41	321 MinMet	200	700
43	134 SpaSci	300	1000
44	69 Ph	200	600
47	257A BioSci	300	1000
48	125G ClaOff	200	500
49	Lauderdale	200	500

The new limits will be posted at each affected site prior to installation. Any comments on this change are welcomed.

G. Jensen, 373-5754

system 2000

Version 2.60 update

On Monday, August 29, System 2000, Version 2.60 was updated to level B on both the Cyber 74 (MIRJE) and the CDC 6400 (MERITSS) computer systems. The following changes will be made with this update:

1. The EXAMINE INDEX command will no longer give erroneous error 19.
2. System Error Code 1035 will no longer be given when using multi-locate files.

H. Kurs, 376-1762

Version 2.40 Update

System 2000 2.40P was updated to System 2000 2.40Q. This update change fixed the following bugs:

1123 PR/NULL/SUM gives -NULL- as answer if function arguments are at different levels. The last family examined is incomplete and the value of the last element encountered is -NULL-.

1359 Any successful queue/terminate command that accesses a damaged data base causes the damaged flag to be turned off.

1686 Report Writer skip 0 with empty print buffer causes system pause flag to be set.

1723 Queue/terminate containing print and update commands with update log armed can get improper print output.

1746 Queue mode WHERE ALL OF got fewer selected data sets than should have been selected.

1749 GENERATE REPORT WHERE (Cond.A OR COND. B) AND COND. C: produced too few reloads.

1810 Update log not maintained properly for PLI queue mode MODIFY/removes.

J. Cosgrove, 376-1761

CYBER 74

Cyber 74 throughput improvement plans for 1977-78

The problem:
During the peak hours of 0900 to 1700 hours, the Cyber 74 has been running many days at 70% to 80% CPU utilization for the entire period. When the DELAY (lower cost) jobs are introduced at midnight, we often experience a one to two hour 95% CPU saturation. In addition, the current Cyber 74 configuration has a MIRJE saturation point of approximately 2 rollin/rollouts per second. This means that response time for

50 users * 40% in execution state/2 rolls/second

gives 10 second response time averages. Note that response time also depends on interactive field length; some typical times are given in the following table:

	response time (seconds)	
octal field length	avg	max
10 K	3	6
15 K	2	7
30 K	4	10
50 K	7	25
70 K	12	40

While it is good that we make such efficient utilization of the computer resources, some users have suffered uncomfortable turnaround delays. Most strategies that improve turnaround also reduce throughput and vice versa. We have attempted to develop some strategies that improve turnaround and if not helping throughput, at least do not reduce it.

The solution:
To improve throughput and turnaround for users for 1977-78, we are considering the following strategies.

A. Load Leveling
   1. We encourage users to run on weekdays between 6 PM and Delay queue start (currently 2400) and on weekends. Both interactive response and batch throughput are significantly better during these times.

   2. Some redistribution of UCC staff use of the Cyber will be made during prime time hours, specifically, reduction from the current 9 ports (17%) to 7 ports (13%) on MIRJE. You may note that this will mean fewer staff consultants during the daytime hours since they will tend to work evenings when machine time is available.

   3. To ensure that critical jobs get through during the weekday 0900 to 1700 time, a premium cost (non-subsidized), priority service is being considered to guarantee prime shift turnaround. This is in addition to other administrative procedures.

B. System Improvements
   1. There are a few equipment additions possible for the Cyber 74. These are additional PPUs, an additional DDP channel and more ECS. The former two additions are reasonably priced, and if they can be shown effective, will be seriously considered. ECS is expensive and stops the CP when it is accessed; thus it decreases available CP power.

   2. System software is being improved by:
      a. tuning the system
      b. less use of Central Memory and the Central Processor
      c. a smaller version of System 2000 will become available in the near future.

C. User Efficiency
   1. Guidelines for more efficient programs have been published, for example, "MNF Appendix J" and MNF "TRACE STATEMENT NUMBERS." We are considering the preparation of a guide to more efficient programming to aid all research users. User suggestions will be welcomed.

   2. We have evolved a Professional Services Department that usually can improve the user's program in terms of run time required, memory, space used, and other resource utilization.

Conclusion:
We plan to implement these strategies in the Fall Quarter and expect that they will suffice to maintain at least the quality of service that we provided during 1976-77. User suggestions for additional improvements will continue to be welcomed. Also, a special subcommittee of the University Computer Services Advisory Committee has been formed to plan long range system improvements to meet expected demand in the 1979-81 time frame.

P.C. Patton, 373-4361
L.A. Liddiard, 373-5239

catlsys

Notice to CATLSYS users

A new version of CATLSYS (FUTURE,CATLSYS) is now available. Facilities for sorting the output by file size, cost, etc., have been added, along with an optional descriptive header line. Complete documentation is available with the control statement:

```
WRITEUP,CATLSYS=FUTURE.
```

Access this version of CATLSYS with the control statement:

```
FUTURE(CATLSYS)
```

T. Hoffmann, 373-4181

Libraries

The following changes are scheduled for September 13, 1977 for FTN4 and MNF users:

Revised to use PROCER for error processing

CHSQ	CHSQI	CINTEG	CVECT	GAMMAF
LSQORPY	MXTRP1	NORMAL	PLROOT1	PLROOT2
PLROOT3	QRCMPLX	RCVECT	ROM1F	ROM2F
RVECT	SYMINV	SYMPACK	SYMSOLU	SYMSOLV
SYMUPK	XINT			

Other revisions

GAMMAF Revised to use ALOGAM (log of gamma function) as main routine.

MXTRP1 Revised to use algorithm 513.

NORMAL Revised to be a COMPASS version. WARNING: NORMAL will now give a new random number sequence from what it was before.

PLOT3S New routine; uses modified spherical coordinates, then calls PLOT3D.

POLYGN Recompiled, no change.

PRCON New routine: line printer contouring, writeup available soon.

QRSYM Error message corrected; special case of N=1 handled correctly.

RANBIT New routine; generates arrays of random bits.

RANT New routine; same as RAN2F except different method and different sequence.

ROM1F Revised to handle negative N correctly.

RVECT Revised to use DOTPRD instead of DOTPROD.

SETRAN, GETRAN, RANDOM
New routines: RANDOM same as RANF except different method and different sequence. SETRAN,GETRAN: get and set seed.

SQALE Revised to handle error messages correctly and to avoid roundoff in some cases. Also affects SKALE, SKALE1, SCALE.

The following changes are only for MNF users:

PRNPLOT	Recompiled for MNF.
SCLPLT	Recompiled for MNF.
PROCER	Recompiled for MNF.
Q92X8J	Recompiled for MNF (internal routine used by PLOTPAC).

Note to FTN3 Users

Changes will no longer be made to library FT3LIB. We expect to remove PAST(FTN), the FTN3 compiler, during the next school year. However, FT3LIB will remain on the system for at least a year beyond that.

MNF users of IMSL, EISPACK, FUNPACK, TEKLIB

Because MNF will use the same library as FTN4 beginning on September 13, 1977, users of the IMSL, EISPACK, FUNPACK, and TEKLIB user libraries should replace PAST control statements with FETCH control statements. After that date, for example, PAST(IMSL) would be FETCH(IMSL).

M.J. Frisch, 376-1636

ACCSTAT

Accounting statistics available

September 13 marks the day that the long awaited ACCSTAT utility becomes available on the Cyber 74 and the 6400. ACCSTAT is designed to provide the user with both resource usage information and cost data for daily, monthly, and yearly accounting periods. The package has the capability of providing both detail and summary data as well as a number of features to facilitate account recording by master users.

The calling sequence for ACCSTAT is:

```
ACCSTAT(L=lfn,UN=usernum,LO=options,BR)
```

where

L Optional file to which report should be written (default: OUTPUT).

UN Subordinate user number for which to generate the report (master users only).

LO List options (default: F)
F=full report (system, offline, budget data)
R=system resource usage only
O=offline resource usage only
B=budget data only
D=detail for each sub-account (master users)
S=summary for all subaccounts (master users)

BR Brief mode, omit headings (default: headings included).

A complete explanation of the ACCSTAT utility and the terms used therein may be obtained by executing a WRITEUP,ACCSTAT command on either system.

S. Nachtsheim, 373-7878

SHORT COURSES

These short courses will be offered by UCC during Fall Quarter, 1977. NO registration is required and NO fees are charged. We list a recommended reference but we do not require you to purchase the text. Most of the reference texts are available at the University's bookstores, but we DO NOT supply the bookstores with a course list.

Introduction to UCC

This is a general introduction to the computer center; equipment, terminal locations, account numbers, job submissions, keypunch sites, tape purchase, necessary forms. This introductory course is given each quarter and is one 2-hour session.
References: from instructor
September 29, 2:15-4:00 PM, MinMet 116 (Mpls)
October 5, 2:15-4:00 PM, FolH 308 (StP)

Beginning COMPASS

COMPASS is the assembly language for the CDC 6000 and Cyber series machines. This course deals with CPU instructions, pseudo instructions, macros, hardware organization, interfacing with FORTRAN, and possibly CPU and common deck timing. The course is usually 6 2-hour sessions.
References: CDC COMPASS Version 3 RM
October 10-21 (MWF), 2:15-4:00 PM, MechE 102

Beginning FORTRAN

A beginner's introduction to the FORTRAN programming language. All the basic skills required to start research or classroom projects will be discussed. Examples will be given as well as computer time to run sample programs. We suggest that the student attend the introduction to UCC short course before attending this course. The course is scheduled for eight 2-hour sessions and is occasionally offered at night.
References: MNF Reference Manual
November 8-December 1 (TTh), 2:15-4:00 PM, FordH 40

Introduction to SYSTEM 2000

This course introduces the user to SYSTEM 2000, the main data base management system supported at the University. SYSTEM 2000 provides a mechanism whereby the user can create, modify, maintain and retrieve data from a data base without recourse to a programming language. This introductory course will cover the following areas: data base definition, data loading, privacy, security and integrity features, and natural language updating and retrieval. In addition, a brief overview of the SYSTEM 2000 Programming Language Interface and the Report Writer feature will be presented. The course is usually scheduled for six 2-hour sessions.
References: MRI SYSTEM 2000 Reference Manual
October 10-21 (MWF), 2:15-4:00 PM, Aero 32[illegible]

Advanced SYSTEM 2000

This course deals with the advanced technical aspects of SYSTEM 2000. The table and fill structures of the data base are presented and used to rigorously examine normalization, WHERE clause optimization, update file usage, scratch file usage, definition optimization, overlay and buffer management, and data size and cost estimation. Students should have previous experience with SYSTEM 2000 or should have taken the "Introduction to SYSTEM 2000" short course. This course is usuallly scheduled for three 2-hour sessions.
References: MRI System 2000 Reference Manual
November 28-December 2 (MWF), 2:15-4:00 PM, MRRC 221

SYSTEM 2000 Programming Language Interface

Data bases maintained via the SYSTEM 2000 data base management system may be accessed for both retrieval and updating via the FORTRAN or COBOL programming languages. This course describes the SYSTEM 2000 precompilers, coding conventions, control card sequences, update statements, retrieval statements, and usage techniques for using SYSTEM 2000 through a programming language. Prerequisites include prior knowledge of FORTRAN or COBOL and System 2000. The course is usually scheduled for three 2-hour sessions.
References: MRI SYSTEM 2000 Reference Manual
November 14-18 (MWF), 2:15-4:00 PM, FordH 40

SYSTEM 2000 Report Writer

SYSTEM 2000 has the capability to produce complex reports via the Report Writer module. Such things as sorting, breakpoints, hierarchical totals and multiple page are handled directly within Report Writer. This course describes report definitions, counts, sums, expressions, ordering, detail and summary printing, breakpointing, record selection, interconnection with programming languages and report generation. The student should have had experience with SYSTEM 2000 or should have taken "Introduction to SYSTEM 2000." The course is usually scheduled for three 2-hour sessions.
References: MRI SYSTEM 2000 Reference Manual
October 31-November 4 (MWF), 2:15-4:00 PM, MRRC 211

KRONOS Control Cards

An introduction to the KRONOS operating system and a discussion of how to run jobs on the Cyber 74. All available control cards, file processing, loader control, program execution, tapes, permanent files, core map and dumps will be discussed. The course is usually eight 2-hour sessions. We suggest that the student have a little prior experience with computers.
References: CDC KRONOS RM, Volume 1
October 4-27 (TTh), 2:15-4:00 PM, Aero 321

Introduction to Timesharing

A discussion of the timesharing system concepts of primary file, TELEX, timesharing command processing, and notes and warnings about the use of the system. Intended for the new timesharing user with some experience but not a lot. The course is usually two 2-hour sessions.
References: CDC KRONOS T/S User's RM
November 1,3 (TTh), 2:15-4:00 PM, LindH 54

Pascal

This is a modern, general-purpose programming language designed as a data structuring successor for Algol-60 and is intended as a convenient basis for teaching programming as well as an efficient tool for writing large programs. this course provides an overview of Pascal, reviewing the control and data-structures in the language. Problem assignments are given; this course is usually nine 2-hour sessions. No programming experience is required, but it would help.
References: "Pascal, User Manual and Report", "Systematic Programming: An Introduction"
October 24-November 11 (MWF), 3:15-5:00 PM, Aero 321

LISP

This is a programming language based on Church's lamda calculus featuring list structures and list processing and having applications in symbol manipulation and recursive programming. It has been used extensively in artificial intelligence, particle physics, and natural language analysis research. The course provides an introduction to list structures and recursive programming. It is usually six 2-hour sessions. Programming assignments are given; prior knowledge of programming and computers is useful but not necessary.
References: "The Little LISPer," "LISP 1.5 Programers Manual"
October 3-21 (MWF), 3:15-5:00 PM, Aero 21

SPSS

The SPSS courses are divided into four sections as follows:
ONE - day 1 - for people who have never used the computer. A broad description of SPSS and instructions on how to access and use the computer.
TWO - day 2 - for people who have not run any SPSS but have used the computer. This day will include instruction on basic SPSS deck structure, data formatting, and syntax rules.
THREE - day 3,4 - for people familiar with the computer and SPSS. These days will cover data modification, system file usage and manipulation, and the SPSS Crosstabulation and Regression procedures.
FOUR - day 5 - for people familiar with the computer, SPSS, and aware of timesharing. This session will describe the SPSS/On-Line System; how to use it, and the differences between SPSS/On-Line and batch-run SPSS.
References: "SPSS", "SPSS 6.5"
October 24-28 (MTWThF), 2:15-3:30 PM
Rooms: MWF, MechE 18
Tu, Z 313
Th, Aero 209

COBOL

A general introduction to the features of the COBOL programming language. Particular emphasis is given to the various statements and what they do. The four divisions of a COBOL program are covered extensively along with all of the verbs in the Procedure Division. No prerequisite is assumed; however, knowledge of another programming language would be helpful.
References: CDC COBOL Version 4 RM
October 24-November 11 (MWF), 2:15-4:00 PM, FordH 40

Record Manager

An introduction to Record Manager explaining what it is and how to use it. Discussions include file organizations, record types, block types, FILE control cards, File Information Table, Record Manager utilities, and Record Manager products. This course is usually three 2-hour sessions. Some familiarity of the COBOL, FTN, MNF, compilers and the Sort/Merge system would be helpful but is not required.
References: CDC Cyber Record Manager User's Guide, Version 1
November 14-18 (MWF), 2:15-4:00 PM, LindH 54

Sort/Merge

An introduction to the Sort/Merge system for sorting and merging data files - what it is, how it works, and how to use it. The discussions will include sort keys, Owncode routines, control card and directive processing, macro processing, sorting in an FTN/MNF program, and Record Manager interfaces. A little knowledge of COBOL, MNF, or FTN and Record Manager would be helpful, but is not absolutely necessary.
References: CDC Sort/Merge RM, V 1 and 4
November 1,3 (TTh), 2:15-4:00 PM, FordH 40

Graphing Packages

A general, introductory workshop/lecture on FORTRAN callable packages available at the University for plotting graphs of data. Techniques and examples will be discussed. This course is given at Lauderdale where the computer is to maximize the number of jobs run because of fast turnaround. Knowledge of elementary FORTRAN is important.
References: from instructor
October 18,19,20 (TWTh), 7:30-9:30 PM, Lauderdale

Art Packages

General introductory lecture/workshop on computer art and art programming at the University. Discussion of equipment used, style, limitations, advantages, and overall concepts. Examples including work from good computer artists will be discussed. The course is usually three 2-hour sessions.
References: from instructor
November 8,9,10 (TWTh), 1:15-4:00 PM, LindH 54

PRODUCTION USAGE SUMMARIES

	July, 1977	July, 1976
CDC Cyber 74		
Number of Batch jobs and MIRJE sessions	71,402 (80,630)	59,288 (68,033)
Central processor hours	160 (197)	147 (188)
DELAY queue processor hours	39 (41)	-
MIRJE terminal hours	6,905 (8,277)	-
Mass storage transfers (KPR)	200,921 (248,857)	143,478 (194,205)
Magnetic tape transfers (KPR)	5,494 (7,624)	5,452 (7,712)
Pages printed	707,047 (804,594)	647,544 (769,554)
Cards punched	369,390 (385,881)	426,836 (468,415)
Microfilm frames produced	7,739 (225,724)	4,563 (197,183)
Statos plotting production (feet)	8,588	4,035
Tapes mounted	9,199	8,874
Average file storage (2210M available)	1,121.8 million char	750.8 million char
Mean time between failures	26.3 hours	11.1 hours
Percentage available during scheduled hours	98.2 percent	98.8 percent
SUPIO availability during scheduled hours	96.9 percent	-
(totals in parentheses include staff development, accounting, and maintenance runs)		
CDC 6400		
Number of jobs run	112,615	89,555
Central processor hours	138	113
MERITSS terminal hours	14,693	10,401
Number of terminal sessions	27,853	19,650
Maximum number of simultaneous users	93	64
Average file storage	267.0 million char	199.8 million char
Mean time between failures	57.1 hours	57.0 hours
Percentage available during scheduled hours	99.6 percent	99.6 percent

CYBER 74 DOWNTIME SUMMARY : August, 1977

	Monday-Friday 0800-1800	other	total
Total possible scheduled uptime hours	230.	310.	540.
Total downtime hours (see Schedule A)	4.2	13.0	17.2
Total uptime hours	225.8	297.0	522.8
Uptime percentage	98.2 percent	95.8 percent	96.8 percent
Average downtime per occurrence	23.1 minutes	97.5 minutes	54.4 minutes
Mean time between failures	28.2 hours	37.1 hours	32.7 hours
Subsystem failures			
SUPIO	8	3	11
TELEX	2	0	2
EXPORT	4	3	7

Schedule A: downtime hours

	Number	Total hours	Average minutes
(1) Preventive maintenance over-runs	1	0.2	10.0
(2) Software related problems	6	1.7	16.5
(3) Hardware related problems	7	14.9	128.0
(4) Indeterminate software/hardware problems	4	0.3	4.0
(5) External Problems	1	0.2	13.0

SUBMISSION SITE USAGE SUMMARY: TELEX EXCLUDED : August, 1977

submitted from	total jobs	%	pages printed	%	cards read	%
Lauderdale	2,900	5.4	290,341	27.7	1,252,825	13.1
ExpEng	6,586	12.2	227,076	21.7	2,515,484	26.3
West Bank	3,048	5.7	72,530	6.9	868,483	9.1
6400	1,236	2.3				
SUPIO	40,017	74.4	457,967	43.7	4,938,709	51.6
TOTALS	53,787		1,047,914		9,575,501	

WRITEUP DOCUMENTS

26JAN77	ABCLIST	Extended CATLIST utility.
22JUN77	ACCRATE	Cyber 74 accountin rates.
28JUL77	AFLISTS	Archived PF lists (indexed).
26JAN77	AMEND	Unit record manager.
26JAN77	APLUM	APL interpreter.
28FEB77	ARCHIVE	PF dump/load utility.
26AUG77	BASIC	New features of BASIC.
26JAN77	BKP	Breakpoint CP program.
26JAN77	BLANK	Write initial label.
26JAN77	BLOCKER	Write blocked stranger tapes.
10JUN77	CALLPFM	FORTRAN permanent file routines.
22JUL77	CALLPRG	Library search extension.
26JAN77	CATALOG	Catalog a file.
26JAN77	CATLIST	Catalog a permanent file.
26JAN77	CATLSYS	Extended CATLIST utility (indexed)
26JAN77	CHANGER	Extended CHANGE utility.
26JAN77	CIMSPL1	CIMS PL/1 user guide.
26JAN77	CKSPSS	SPSS utility program.
10JUN77	CODING	KRONOS coding conventions.
29JUL77	CONTROL	Descriptions of control cards (indexed).
26JAN77	COPYL	Cyber common utility; LIBEDIT.
26JAN77	COPYU	Copy unit records.
22FEB77	COST	Calculate job cost.
01FEB77	COUNTU	Count unit records.
09JUN77	DEBUG	CPU error exit description.
26JAN77	DELAY	DELAY queue feature.
26JAN77	DISPOSE	DISPOSE control card.
26JAN77	DIVERT	Re-route large output files.
26JAN77	DMPCOR	CM dump routine.
26JAN77	DMPECS	Dump ECS.
26JAN77	DRESS	Prepare source file for MODIFY and UPDATE.
26JAN77	DUMPPF	Permanent file dump and load utility.
26JAN77	EISPACK	Descriptions of EISPACK programs (indexed).
26JAN77	ERRMESS	Dayfile error messages.
01JUN77	EXAMINE	Determine magnetic tape contents.
26JAN77	FILES	Manipulate local files.
26JAN77	FMT	Text formating program.
22FEB77	FOCAL	FORTRAN calculator.
09AUG77	FORSUBS	Description of FORTRAN subprograms (indexed).
26JAN77	FUNPACK	Description of FUNPACK programs (indexed).
26JAN77	GETSAVE	PF utility.
26JAN77	HASH	Change user index to job name and vice-versa.
26JAN77	ISIS	Interactive statistics system.
26JAN77	ITEMIZE	Cyber common utility; CATALOG.
26JAN77	KCL	Control card processor.
26JAN77	LIBEDIT	Library editing program.
26JAN77	LIBLIST	Short descriptions of library files.
26JAN77	LIBRARY	Description of library files (indexed).
01FEB77	LISP	LISP information.
26JAN77	LPKODE	LP/IP/MIP package.
27AUG77	MANTRAP	MNF postmortem dump package.
01AUG77	MEMORY	Field length and loading.
23APR77	MF501	Translate file for EBR.
23APR77	MNF	Short guide to FETCH MNF.
26JAN77	MODIFY	Source library editing program.
26JAN77	MODUP	MODIFY to UPDATE conversion program.
04FEB77	MP	Microplanner language.
01AUG77	NEWFL	Field length system changes.
25JUN77	NEWMNF	MNF conversion guide.
26JAN77	PACKMS	Pack random file.
27MAR77	PASCAL	PASCAL information file (indexed)
27MAR77	PASCLIB	PASCAL library information.
01FEB77	PFCOST	Estimate PF costs.
26JAN77	PFGUIDE	Permanent files user's guide.
26JAN77	PFILES	Permanent files request processor.
26JAN77	POLISH	Edit ANSI FORTRAN modules.
27JAN77	PROCPAC	Reference for calling system routines.
19MAR77	PSEUDO	COMPASS pseudo-instructions.
26JAN77	PURGER	Extended PURGE utility.
06JUN77	PUTUP	How to put up a writeup.
26JAN77	REBLOCK	Converts "S" AND "L" tapes to internal.
20JUL77	REENTRY	Alter program entry point.
26JAN77	REFORM	Sequence/desequence T/S source lines.
20JUN77	RIGHTUP	How to use WRITEUP.
26JAN77	RJECOM	Remote job entry commands.
10FEB77	RJE1976	SUPIO statistics for 1976.
01JUL77	SADIE	Image processing user library.
26JAN77	SEND	Send files to the 6400.
06JUN77	SETVAL	Set certain validation limits.
26JAN77	SNOINFO	CAL 6000 SNOBOL.
26JAN77	SNPSHOT	Write/restore registers and dump.
23FEB77	SORTOPL	MODIFY sorter.
04MAY77	SPICE	Semiconductor program.
26JAN77	STRATEN	Straighten COMPASS source lines.
09MAR77	SUBMIT	Submit job to input queue.
25MAY77	SYSLIB	SYSLIB documentation.
22FEB77	TAPES	Tape library manager.
22FEB77	TAPEUSE	Tape user's guide.
26JAN77	TDUMP	Dump a file.
26JAN77	TEKLIB	Library for TEKTRONIX terminals.
26JAN77	TESTCR	Card reader testing routine.
26JAN77	TESTLP	Printer and line test program.
26JAN77	TIDY	Tidy FORTRAN source lines.
15MAR77	TYPENEW	TYPESET changes.
15MAR77	TYPESET	Text reformating program.
15JUL77	UNPAGE	Edit carriage control characters.
06JUL77	UPWRITE	Writeup index editor.
25AUG77	XEDIT	Extended interactive text editor.
14MAY77	XMIT	XMIT/SEND writeup.
26JAN77	1004INT	1004 operating instructions.
26JAN77	1004SET	1004 character set conversion.

WRITEUP FILES WITH ROUTINELY CHANGING INFORMATION

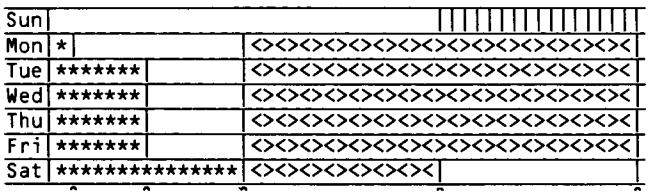
AFmmmyy	Lists of archived files; mmm=month, yy=year.
CONSULT	Consulting sites and hours.
DOCLIST	List of documentation and publications sources.
HOURS	Operating hours.
NOTE	T/S system notes.
PREVIEW	Preview display dump.
PTRFORT	List of FORTRAN bugs.
PTRKR	List of operating system bugs.
PTRMISC	List of miscellaneous software bugs.
PTRSTAT	List of statistics packages bugs.
PTRS2K	List of System 2000 bugs.
RJDSTAT	Daily SUPIO statistics.
RJEMTOT	Monthly SUPIO statistics.
RJMSTAT	Cumulative SUPIO statistics.
SITEBIN	Output shelf locations.
SYSMODS	Latest system changes.
TSTATS	Tape mounting statistics.

NEW PRINTED PUBLICATIONS

REVISED PRINTED PUBLICATIONS

ROM2F

CYBER 74 OPERATING HOURS



******** Lauderdale only
|||||||| Lauderdale, ExpEng
<><><><> Lauderdale, ExpEng, West Bank

SUPIO (RJE terminals) comes up 1/2 hour after operation begins and closes down 1/2 hour before operation ends.

TELEX (MIRJE terminals): the operator will issue a 10 minute warning before TELEX is dropped.

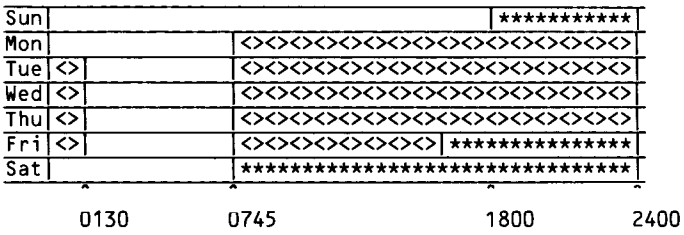
See WRITEUP,HOURS for schedule of batch job pickup/delivery service at Lauderdale and Experimental Engineering.

TWIN CITIES CAMPUS REMOTE JOB ENTRY SITES

Site	ID	supervisor	phone	keypunches*
East Bank				
ElectE 38	4V	J. Guentzel M. Cook	373-5404 373-3895	2
EltH N640	4W	D. Anderson	373-5456	2
ExpEng 130	4B	Shift Supervisor	373-4596	7
FrontH	4E	M. Kilbury B. Adams	373-2740 373-6885	1
KoltH S191	4Z	N. Mullaney	373-2348	4
HS-A 1-752	4C	L. Ellis	373-0331	1
MinMet 321	41	R. Brown	373-2308	3
Physics 69	44	R. Scarlett D. Olson	373-0243 373-5320	3
SpaSci 134	43	R. Weinberg	373-7881	1
TerrH W106	4I	R. Baker	373-3567	1
Zoology 314	4J	E. Cushing	373-2232	1
West Bank				
SocSci 167	4X	R. Dykstra B. Shattuck	373-3608 373-3608	2
SocSci 1009	4K	R. Anderson	373-0177	1
St. Paul				
BioSci 257A	47	R. Comstock P. Kaufman	373-0979 373-0927	1
ClaOff 125G	48	C. Bingham S. Weisberg Consultant Consultant	373-0988 373-1068 373-0829 376-3846	3
CofH 415	21	D. Nelson T. Ehlen	376-7003 376-7003	1
NorH 24	40	J. Colten	373-0990	2
Lauderdale				
User's Room	49	Secretary	373-4912	5

*additional keypunches in 131 ExpEng(1), 86 BlegH(11) and 90 BlegH(1).

CDC 6400 OPERATING HOURS



****** up, not attended
<><><> up, attended

TWIN CITIES CAMPUS INSTRUCTIONAL COMPUTER LABORATORIES

Site	Supervisor	phone	equipment
East Bank			
CentH	R. Rickgarn	373-2289	TTY(1)
EltH 121,125	D. Anderson	373-5456	TTY(6) CRT(5) Printer(1)
Ex 140	T. Hodge P. Genes	373-4599 37 6-5262	CRT(3)
HS-A 1-752	L. Ellis	373-0331	TTY(6) CRT(2)
LindH 136A	M. Schneider	373-7582	CRT(6) Decwriter(2) Printer(1)
MechE 308	A. Erdman	373-2977	TTY(10) CRT(2)
TerrH	R. Baker	373-3567	TTY(1)
VincentH 4	W. Stenberg	376-7529	TTY(11) CRT(2)
WaLib 204*	R. Estelle	373-5195	Decwriter(10) CRT(4)
West Bank			
MdbH	W. Bakkenist	373-9818	TTY(1)
SocSci 167	R. Dykstra	373-3608	TTY(8) CRT(4) Decwriter(1)
SocSci 1009	R. Anderson	373-0177	TTY(3) CRT(2)
St. Paul			
ClaOff 125	S. Weisberg	373-1068	TTY(9) CRT(3) Decwriter(2) DI/AN(1)

*for CAI use only

the suggestion box

YOUR NOTICES ON TURNAROUND TIME ARE HELPFUL, BUT VAGUE. COULDN'T SOME TIMING DEVICE BE CONNECTED TO I/O THAT WOULD CALCULATE THE TIME BETWEEN READING IN THE DECK AND PRINTING THE OUTPUT (PLUS A FEW MINUTES FOR HANDLING INPUT AND OUTPUT) WITH THE TIME NOTED ON SOME DIGITAL CLOCK IN THE SUBMISSION AREA? I SAY THIS AFTER WAITING 45 MINUTES FOR A PROJECT THAT NORMALLY TAKES 20 MINUTES MAXIMUM.

T.M.:07JUL77

I personally like your idea but we currently do not have the funds for such a device and, since your job's total throughput time also depends on jobs submitted after yours, I do not think that it would be too accurate. My systems group has considered, for several years, putting out a dayfile message that would state whether a job used the system resources well or not; this message should tell the user if the job was a 'good' or 'bad' job. However, we have not yet come up with satisfactory criteria for such measures.

L. Liddiard

CONCERNING THE DISPOSED OUTPUT SHELF:

SOME DAYS THE SHELVES BECOME FILLED BEYOND CAPACITY. PERHAPS AN OVERFLOW SHELF COULD BE USED WHEN NEEDED.

OUTPUT MORE THAN 2 INCHES THICK REALLY SHOULD BE PLACED ONTO A SEPARATE SHELF.

P.G.:13JUL77

We will look into expanding the shelf space and will reorganize it somewhat before fall quarter.

J. Larson

RETURN TO:
UNIVERISTY COMPUTER CENTER
227 EXPERIMENTAL ENGINEERING
UNIVERSITY OF MINNESOTA
208 UNION STREET SE
MINNEAPOLIS, MINNESOTA 55455