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              Program Descriptions; *Programed Materials
IDENTIFIERS   BASIC Programing Language; Computer Software

ABSTRACT
              Information for college faculty members provided by
this handbook on computer assisted instruction (CAI) includes (1) CAI
sites to visit, (2) a reading list, (3) CAI related organizations,
(4) courseware sources, (5) CAI conference calendar, 1977-78, and (6)
resource persons in a variety of disciplines. Appended is a catalog
of CAI courseware available from California State University at
Fresno. Program abstracts are provided for those programs given a
high rating by faculty evaluators. These programs have been
completely rewritten in a structured BASIC, documented, and tested.
(Author/STS)

THE ABC's OF CAI

A HANDBOOK FOR FACULTY

SECOND EDITION, 1977-78

Developed by the

CENTER FOR INFORMATION PROCESSING
California State University, Fresno

Jack A. Chambers, Director
Jerry W. Sprecher, Manager
E. M. Green, Acting Assistant Director
for Instruction/Research

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INTRODUCTION

Over the past few years one of the most consistent requests heard from faculty has been the need for more information about computer assisted instruction. How do you get started? Where are good courseware programs available? Who can I talk to about using the computer in the classroom in my field?
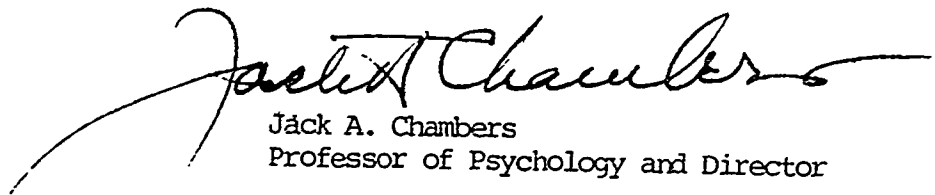
To try and answer some of these questions, the CSUF Center for Information Processing developed and published the first edition of The ABC's of CAI last year. This CAI Handbook was so well received that the decision was made to update the manual and publish a second edition this year.

So here it is. Similar to last year's, the Handbook contains information about CAI centers to visit, relevant books, periodicals, and organizations, places to acquire courseware, and a 77-78 calendar of CAI related conferences. Again, the Handbook includes a list of persons knowledgeable in CAI use in higher education, all of whom have cheerfully (!) agreed to answer CAI-related questions from interested faculty.

Finally, the latter half of the Handbook contains the 77-78 edition of the CSUF Catalog of Instructional Courseware. As was true of the 76-77 edition, the courseware is listed by field, and the primary listing includes only those programs which have been evaluated and given a high rating by the CSUF faculty. And, as before, the programs have been rewritten in a very basic BASIC, in a structured format. They should be easy to modify to fit a given learning

situation, and with little effort should be able to be run on almost any mini or larger computer which supports a BASIC compiler. Best of all, the number of such programs listed in the catalog has more than doubled since last year, with a significant number of diverse fields covered.

The Center will be happy to supply a tape of all programs listed in the main section of the Catalog to any interested university, college, or secondary school. The rest is up to you. Good Luck!

Jack A. Chambers
Professor of Psychology and Director

October, 1977

CAI SITES TO VISIT

Claremont Colleges, Seaver Computer Center, Claremont, California 91711

Hardware: Digital Equipment DEC-10

Languages: BASIC, APL

Courseware: Tutorial

Have written extensive materials for languages, including French, German and Spanish. Scope of materials ranges from vocabulary building to sentence structures and conversation in the particular language.

Contact: Cecilia Baumann, Director, Oldenborg Center for Modern Languages and International Relations - (714) 626-8511, Ext. 3202

Coast Community College District, Information Services, 2701 Fairview Road, Costa Mesa, California 92626

Hardware: IBM 155/2

Language: APL

Courseware: Games, simulations, tutorials, drill and practice, problem solving, in most disciplines.

Contact: Monte Ruth - (714) 556-5630

Gavilan College, Computer Services, 5055 Santa Teresa, Gilroy, CA 95020

Hardware: HP 2000 Access

Language: BASIC

Courseware: Problem Solving

Physics (first two years), Engineering (graphics, circuits), Math (linear algebra), Chemistry (simulation, organic analysis)

Contact: Herb Peckham - (408) 847-1400, Ext. 387

<u>Los Angeles City School District</u>, Education Systems and Programming Branch, 450 North Grand Avenue, G372, Los Angeles, California 90012

Hardware: Six HP 2000 C Prime, one 2000 Access, one 2000 Timesharing

Courseware: Primarily HP supplied User Library

Contact: Dr. Toggenburger - (213) 625-4919

<u>Modesto Junior College</u>, College Avenue, Modesto, California 95350

Hardware: HP 2000 Access

Languages: BASIC, FINDIT

Courseware: Tutorials in English grammar, Psychology pre-tests and post-tests, Agriculture (land-leveling)

Contact: Nels Overgaard - (209) 526-2000, Ext. 492

<u>Santa Rosa Junior College</u>, Data Processing, 1501 Mendocino Avenue, Santa Rosa, California 95401

Hardware: HP 3000 Series 2

Languages: BASIC, FORTRAN

Courseware:

    <u>Biology</u>: Simulations, games, problem solving

      Contact: Dr. Charles Brown - (707) 527-4320

    <u>Chemistry</u>: Simulations, problem solving, exam generation

      Contact: Courtenay Anderson - (707) 527-4284

    <u>Math</u>: Programs in calculus to graph functions

      Contact: Clyde Russel - (707) 527-4356

<u>Stanford University</u>, Institute for Mathematical Studies in the Social Sciences, Ventura Hall, Stanford, California 94305

Hardware: PDP 10

Languages: SAIL (an extension of ALGOL), LISP

Courseware: Tutorial, problem solving

    University Level Philosophy and Computer Science

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Contact: Patrick Suppes - (415) 497-3111

University of California, Berkeley, Lawrence Hall of Science, Berkeley, California 94720; Telephone: (415) 642-5132

Hardware: Three Data General Machines, including a Nova and Eclipse

Languages: BASIC, PILOT

Major Projects:

Outreach to Schools:

Provides computer services to local school districts, from pre-school to university level.

Contact: Lee Berman - (415) 642-3167

Computer Education:

Provides a variety of services for teachers and students including workshops, creative play courses, etc., using both BASIC and PILOT.

Contact: Robert Kahn - (415) 642-1238

Computer Education at the School for the Deaf:

Developing CAI authoring systems to allow teachers to enter in their own materials. Holds workshops for instructors interested in using these materials.

Contact: Tim Aaronsen - (415) 642-3598

University of California, Irvine, Computer Facility, Irvine, California 92717

Hardware: Honeywell Sigma 7

Languages: Assembly, FORTRAN, and APL

Courseware:

Physics

About 100 computer dialogues with extensive use of computer graphics; includes on-line quizzes for the mechanics part of the beginning course.

Contact: Al Bork - (714) 833-6911

Mathematics

On-line exams for the Pre-Calculus course.

Contact: Steve Franklin - (714) 833-5154

Chemistry

Chem-world redox reaction.

Contact: Dick Ballard - (714) 833-5849

Biology

Ecology simulations.

Contact: Keith Justice - (714) 833-6231

CAI READING LIST

<u>General References</u>

<u>Author's Guide to CAI</u>. College of Medicine, Ohio State
University, Columbus, fourth edition, 1977. $ 30.00

Focuses on the authoring process which culminates
in the construction of both tutorial and simulation
types of CAI.

<u>Computers in Education Handbook</u>. Department of Computer
Science, University of Oregon, Eugene, fourth printing,
1976.
                                                                10.80

General - covers the uses of computers in education. Of
particular interest are Chapter 4, "The Computer as an Aid
to Learning", and Chapter 5, "The Computer as a Teacher".

<u>Computer-Based Education Abstracts</u>. Entelek, Inc., 42 Pleasant
Street, Newbury, MASS 01950. Issued four times yearly.   77.50

Surveys the major periodicals concerned with Computer
Assisted Instruction.

<u>Seventh Conference on Computers in the Undergraduate Curricula,
Proceedings, 1976</u>. Order from Ted Sjoerdsma, Treasurer, CCUC,
124B Lindquist Center for Measurement, Iowa City, Iowa 52242.
                                                                10.00 each

Held annually, the Conference's proceedings each contain
approximately 80 papers in almost all subject areas.

<u>Encyclopedia of Computer Science</u>. Anthony Ralston, Editor
Petrocelli/Charter, New York, 1976.
                                                                60.00

Although primarily concerned with computers as a field, the
Encyclopedia contains several excellent overview articles
on computerized instruction, including "Computer-Assisted
Instruction" (CAI) and "Computer-Assisted Learning and Teaching".

<u>1977 ADCIS Proceedings</u>. Order from Dr. Fred T. Hofstetter,
Music Department, University of Delaware, Newark, Delaware   10.00
19711.

Index to Computer Based Learning. Instructional Media
Laboratory, University of Wisconsin, 1976. P.O. Box 413,
Milwaukee, Wisconsin 53201

9.50 fiche
24.75 printout

Contains comprehensive information about over 1800
computer based learning programs available internationally.
Published semi-annually -- available in microfiche or as a
computer printout.

Periodicals

ADCIS News   (see CAI Organizations, ADCIS)

Computers and Education - An International Journal.   Issued quarterly,
$50 a year for institutions, $30 for individuals affiliated with a
subscribing institution. Available from: The Subscription Fulfillment
Manager, Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 OBW,
Engl.nd.

A brand new addition to .e Pergamon Research and Review Journal
library, Computers and Education, in Volume 1, Number 1, "sets
as its goal the establishment of an international forum for
communication in the use of ... computers in all aspects of higher
education. Since the scope of computer applications in all levels of
education is virtually unlimited, principal e phasis will be on
college undergraduate use."

CONDUIT State of the Art Report   (see CAI Organizations, CONDUIT)

Creative Computing. Six issues per year; $8.00; $6.00 for students
or groups; $15.00 for institutions. Editor: David A. Ahl,
Ideametrics, Box 789-M, Morristown, NJ 07960.

Written in very light style. Has a large number of articles dealing
with the development of materials in BASIC. Possibly aimed more at
elementary and secondary schools than at college markets.

Educational Technology. Educational Technology, 140 Sylvan
Avenue, Englewood Cliffs, NJ 07632.
$ 25.00

Educational Technology includes information and stimulating
articles about new learning techniques and strategies, many of
which may be used by Computer Based Instruction.

The Journal (Technological Horizons in Education). Eleven issues
per year; no charge to persons who qualify (e.g., management in
public and private educational facilities); $15.00 otherwise. Editor:
John F. Martell, Information Synergy, Inc., P. O. Box 99?, Acton, MA 01720.

Although primarily concerned with the use of technology as a whole
in education, each issue usually contains some material on the uses
of computers in education.

Journal of Computer-Based Instruction (see CAI Organizations, ADCIS).

Journal of Educational Data Processing. Issued quarterly, P. O.
Box 867, Soquel, CA 95073.   15.00

A forum for professional articles in instructional and adminis-
trative educational computing. Has had several issues dedicated
to CAI.

PIPELINE (see CAI Organizations, CONDUIT).

SIGCUE Bulletin (see CAI Organizations, ACM).

Simulation and Games. Sage Publications, Inc. 275 So. Beverly
Drive, Beverly Hills, CA 90212. Issued quarterly; $14.40 for
individuals, $24 for institutions.

". . . intended to provide a forum for theoretical and empirical
papers related to man, man-machine, and machine simulations of social
processes."

CAI ORGANIZATIONS

Association for Computing Machinery (ACM), 1133 Avenue of the Americas, New York, NY 10036. Membership: $35.00, which includes subscription to the monthly Communications of the ACM (non-member subscription rate: $42.00).

The Special Interest Group on Computer Uses in Education (SIGCUE) issues a quarterly bulletin, which is probably the best resource available for those interested in college teaching and learning.

Subscriptions available from SIGCUE, Association for Computing Machinery, P. O. Box 12105, Church Street Station, New York, NY 10249. $4.00 for ACM members, $6.00 otherwise.

Association for the Development of Computer-Based Instructional Systems (ADCIS). Individual membership $20.00 per year available from Dr. Peter Dean, Secretary-Treasurer, ADCIS, P.O. Box 7018ª. Los Angeles, CA 90070.

ADCIS has the following sub-groups: Elementary/Secondary/Junior Colleges; Health Sciences; Implementations.

The Journal of Computer-Based Instruction, issued quarterly, publishes scholarly articles on Computer Based Instruction topics. It is free for ADCIS members, or may be ordered for $12.00 from:

> Journal of Computer-Based Instruction
> 215 South Main
> Clarion, Iowa

ADCIS also publishes a bi-monthly newsletter, the ADCIS News.

Association for Educational Data Systems (AEDS), 1201 Sixteenth Street, N.W., Washington, D.C. 20036. Individual membership: $25.00.

Includes subscription of AEDS Bulletin, AEDS Monitor, AEDS Journal. NAUCAL sub-group is of particular interest.

California Educational Computing Consortium (CECC), California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840.

Sponsors two conferences and workshops a year on the use of computers in higher education. No membership fee.

Contact: Ronald J. Langley - (213) 498-4755

<u>CONDUIT</u>, P. O. Box 388, Iowa City, Iowa

Supported by a grant from NSF, CONDUIT is a consortium of university users working on developing complete, well documented, transferable instructional computer materials. $50.00 subscription includes three issues of the catalog, the <u>State of the Art Report</u>, and copies of <u>PIPELINE</u>, a newsletter issued three times yearly.

<u>DECUS (Digital Equipment Computer Users Society)</u>, Maynard, Massachusetts 01754. Membership limited to users of DIGITAL equipment.

A non-profit users group supported by DIGITAL, DECUS provides a variety of services to its members, including assembling and distributing user supplied programs. Various local groups meet on a regular basis. Educational DIGITAL users in California may be interested in the Northern and Southern California RSTS LUGS (local user groups). Publishes DECUSCOPE and EDUSIG News (EDUSIG is the Education Special Interest Group of DECUS).

Contact: Eli Glazer, DECUS Executive Director - (617) 897-5111, Ext. 4160

<u>Hewlett-Packard Educational Users Group</u>, Hewlett-Packard, General Systems Division, 5303 Stevens Creek Blvd., Santa Clara, CA 95050. ATTN: Educational Users Services.

Membership is available for all current or potential users of HP equipment. A variety of services are provided, including:

HP Educational Users Group Newsletter
   Approximately eight issues per year. Free to HP equipment users, $6.00 otherwise.

Computer Curriculum Project
   Provides complete course materials for various subject areas in secondary schools, as well as physics, business, and environmental study courseware at the university level.

HP Clearing House
   Produces a catalog every six months of materials available for use on HP machines.

HP Contributed Library
   Programs supplied by users are collected and distributed to HP users for a minimal charge.

Contact: Tom Lee - (408) 249-7000

CAI COURSEWARE SOURCES

CONDUIT   (see CAI Organizations)

Dartmouth Timesharing System (DTSS), Mr. Eugene A. Fucci, Assistant
    Director, Kiewit Computation Center, Dartmouth Computation Center,
    Dartmouth College, Hanover, New Hampshire

    For those in the San Francisco and Los Angeles areas, access to
    the extensive Dartmouth Library can be obtained via TELENET ports
    of entry for approximately $8.00 per hour plus the cost of the call
    to Los Angeles or San Francisco.

    Contact: Eugene Fucci - (603) 646-2643

DECUS   (see CAI Organizations)

Hewlett-Packard Educational Users Group   (see CAI Organizations)

Index to Computer-Based Learning, Anastasia Wang, Editor, Instructional
    Media Laboratory, University of Wisconsin/Milwaukee, P. O. Box 413,
    Milwaukee, Wisconsin 53201. $9.50 microfiche; $24.75 printout.
    Phone: (414) 963-4788

    The most current and comprehensive listing of computer based learning
    programs, the 1976 edition indexes 1836 programs from 222 sources.
    It is cross-indexed by subject matter, programming language, central
    processor, instructional logic and source.

Physics Computer Development Project, University of California, Irvine,
    Dr. Alfred Bork, Professor of Physics, University of California,
    Irvine, CA 92717.

    Materials distributed without cost to those with appropriate hardware.

CAI CONFERENCE CALENDAR

November 6-8, 1977

Ninth Annual Individualized Instruction Congress, Purdue University. Chairman: Dr. J. D. Russell, 3010 Rosewood Drive, West Lafayette, Indiana 47906

November 8-11, 1977

COMPSAC 77: First International Computer Software and Applications Conference, Chicago, Illinois. Chairman: Stephen Yau, Chairman, Department of Computer Science, Northwestern University, Evanston, Illinois 60201.

November 17-19, 1977

Western Educational Computing Conference, Jack Tar Hotel, San Francisco, California. Sponsor: California Educational Computing Consortium. Contact: Ronald J. Langley, California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840

November 28 - December 1, 1977

Fall DECUS Symposium, Town and Country Hotel, San Diego, California. Contact: Thomas W. McIntyre, Digital Equipment Computer Users Society, 129 Park Street, Maynard, MASS 01754

December 5-7, 1977

1977 Winter Simulation Conference, Gaithersburg, MD. Chairman: Robert G. Sargent, Dept. of Engineering and Operations Research, Syracuse University, Syracuse, NY 13210

February 27 - March 3, 1978

ADCIS Winter 1978 Conference, Dallas, Texas. Host: Carol Luce, East Texas State University, Commerce, Texas 75428

March 15-17, 1977

Eleventh Annual Simulation Symposium,
Tampa, Florida. Chairman: Ira M. Kay,
Box 22621, Tampa, Florida 33622

April 6-8, 1978

Spring CECC Meeting and Workshop,
Registry Hotel, Orange County Airport,
18800 MacCarther Blvd., Irvine, CA 92715
Sponsor: California Educational Computing
Consortium. Contact: Ronald J. Langley,
California State University, Long Beach,
Long Beach, California 90840

May 15-19, 1978

16th Annual AEDS Convention, Atlanta,
Georgia. Contact: Dr. James Eisele,
Office of Computing Activities, University
of Georgia, Athens, GA 30602

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

CAI RESOURCE PERSONS

Field	Name and Address	Telephone No.	Message No.
Accounting	Jim McEntire, Instructor Accounting Department Contra Costa College 2600 Mission Bell Drive San Pablo, CA 94806	(415) 235-7800 ATSS - Same	(415) 235-7800 ATSS - Same

Agricultural
  Economics
Business
  Simulations
	Carl Pherson
	Associate Professor of
	  Agricultural Economics
	California State University,
	  Fresno
	Fresno, CA 93740
		(209) 487-1075
		ATSS - Same
			(209) 487-2949
			ATSS - Same

Author Languages Artificial Intelligence	Fred Hornbeck Associate Professor of Psychology San Diego State University San Diego, CA 92182	(714) 286-5909 ATSS 636-5909	(714) 286-5358 ATSS 636-5358
Biology	Dennis Anderson Professor of Botany Humboldt State University Arcata, CA 95521	(707) 826-3677 ATSS - Same	(714) 826-3245 ATSS - Same
Biology	Dennis Hynes Professor of Biological Sciences California Polytechnic State University, San Luis Obispo San Luis Obispo, CA 93401	(805) 546-2649 ATSS 628-2649	(805) 546-2649 ATSS 628-2649
Biology	Ruth Von Blum Assistant Research Biologist Lawrence Hall of Science University of California, Berkeley Berkeley, California 94720	(415) 642-2685 ATSS - Same	(415) 642-2685 ATSS - Same

Field	Name and Address	Telephone No.	Message No.
Business	Jerry Sprecher, Manager Center for Information Processing California State University, Fresno Fresno, CA 93740	(209) 487-1123 ATSS - Same	(209) 487-1123 ATSS - Same
Business Economics	John Gessford, Assoc. Professor Business Information Systems California State University, Los Angeles Los Angeles, CA 90032	(213) 224-2931 ATSS 683-2931	(213) 224-3887 ATSS 683-3887
Business Statistics	Jim Kraushauer Associate Professor of Quantitative Methods California State University, Fresno Fresno, CA 93740	(209) 487-1171 ATSS - Same	(209) 487-2852 ATSS - Same
Chemistry	Courtenay Anderson, Instructor Chemistry Department Santa Rosa Community College 1501 Mendocino Santa Rosa, CA 95401	(707) 527-4341 ATSS - Same	(707) 527-4284 ATSS - Same
Chemistry	Joe Cassanova Professor of Chemistry California State University, Los Angeles Los Angeles, CA 90032	(213) 224-3155 ATSS 683-3155	(213) 224-3613 ATSS 683-3613
Chemistry Statistics	Dave Zellmer Associate Professor of Chemistry California State University, Fresno Fresno, CA 93740	(209) 487-2113 ATSS - Same	(209) 487-2103 ATSS - Same
Communication Arts & Sciences	George Diestel, Professor of Communication Arts & Sciences California State University, Fresno Fresno, CA 93740	(209) 487-2477 ATSS - Same	(209) 487-2826 ATSS - Same
Computer Administered Testing	Perry Edwards, Instructor Math & Business Data Processing Sierra College 5000 Rocklin Road Rocklin, CA 95677	(916) 624-3333 ATSS - Same	(916) 624-3333 ATSS - Same

Field	Name and Address	Telephone No.	Message No.
Computer Managed Instruction Author Languages Data Processing	Bob Swanson, Manager Instructional Service Campus Information Systems San Diego State University San Diego, CA 92182	(714) 286-6481 ATSS 636-6481	(714) 286-6481 ATSS 636-6481
Computerized Guidance (Eureka)	Jim Stubblefield, Chairman Counseling Department Diablo Valley College 321 Golf Club Road Pleasant Hill, CA 94523	(415) 685-1230 ATSS - Same	(415) 685-1230 Atss - Same
English	Anna Marie Thames Communications Division Golden West College 15744 Golden West Huntington Beach, CA 92647	(714) 892-7711 ATSS - Same	(714) 892-7711 ATSS - Same
General Applications of CAI Psychology	Jack Chambers, Director Center for Information Processing California State University, Fresno Fresno, CA 93740	(209) 487-1123 ATSS - Same	(209) 487-1123 ATSS - Same
General Applications of CAI Science Education	Jim B. Cunningham Associate Professor of Education California State University, Northridge Northridge, CA 91330	(213) 885-2529 ATSS 672-2529	(213) 885-2580 ATSS 672-2580
General Applications of CAI	David Leveille, Associate Director Learning Services Development Office of the Chancellor 400 Golden Shore Long Beach, CA 90820	(213) 590-5542 ATSS 635-5542	(213) 590-5542 ATSS 635-5542
Geography Information Science	John Westfall, Professor Geography and Information Science California State University, San Francisco San Francisco, CA 94132	(415) 469-1149 ATSS 554-1149	(415) 469-2049 ATSS 554-2049
Home Economics Dietetics & Nutrition	Ratana Newsome Professor of Home Economics California State University, Fresno Fresno, CA 93740	(209) 487-1211 ATSS - Same	(209) 487-2164 ATSS - Same

Field	Name and Title	Telephone No.	Message No.
Linguistics Foreign Languages	David Moor Courseware Specialist Center for Information Processing California State University, Fresno Fresno, CA 93740	(209) 487-1123 ATSS - Same	(209) 487-1123 ATSS - Same
Management	AnnaBelle Sartore Associate Professor of Management California State University, Long Beach Long Beach, CA 90840	(213) 498-4557 ATSS - Same	(213) 498-4557 ATSS - Same
Math Graphics & Interactive Computer-Based Testing	Steve Franklin Senior Administrative Analyst Office of Special Programs University of California, Irvine Irvine, CA 92717	(714) 833-5154 ATSS - Same	(714) 833-5154 ATSS - Same
Math	Noal Harbertson Associate Professor of Mathematics California State University, Fresno Fresno, CA 93740	(209) 487-2992 ATSS - Same	(209) 487-2992 ATSS - Same
Math Calculus and other Math Uses	Tom Green, Instructor Math Department Contra Costa College 2600 Million Bell Drive San Pablo, CA 94806	(415) 235-7800 ATSS - Same	(415) 235-7800 ATSS - Same
Math Logic Probability	Pat Suppes, Professor Institute for Mathematical Studies in the Social Sciences Ventura Hall Stanford University Stanford, CA 94305	(415) 497-3111 ATSS - Same	(415) 497-3111 ATSS - Same
Math Statistics	Jeff Mock, Instructor Math Department Diablo Valley College 321 Golf Club Road Pleasant Hill, CA 94523	(415) 685-1230 ATSS - Same	(415) 685-1230 ATSS - Same

Field	Name and Address	Telephone No.	Message No.
Physics	Robert Eisberg Professor of Physics University of California, Santa Barbara Santa Barbara, CA 93106	(805) 961-4171 ATSS – Same	(805) 961-3888 ATSS – Same
Physics	Bob Sum, Instructor Physics Department Golden West College 15744 Golden West Huntington Beach, CA 92647	(714) 892-7711 ATSS – Same	(714) 892-7711 ATSS – Same
Physics	Sun-Yu-Fung Professor of Physics University of California, Riverside Riverside, CA 92521	(714) 787-5636 ATSS 651-5636	(714) 787-5331 ATSS 651-5331
Physics (APL)	Ralph Mills, Associate Professor Chairman of Department, Physics Orange Coast College 2701 Fairview Road Costa Mesa, CA 92626	(714) 556-5678 ATSS – Same	(714) 556-5675 ATSS – Same
Physics Chemistry Math	Sam Wiley Professor of Physics California State University, Dominguez Hills 1000 East Victoria Carson, CA 90747	(213) 515-3591 ATSS – Same	(213) 515-3591 ATSS – Same
Physics Chemistry Math	Dick Ballard Assistant Research Physicist Department of Physics University of California, Irvine Irvine, CA 92717	(714) 833-5849 ATSS – Same	(714) 833-6911 ATSS – Same
Physics Electricity & Magnetism	Evan Jones, Instructor Physics Department Sierra College 5000 Rocklin Road Rocklin, CA 95677	(916) 624-3333 ATSS – Same	(916) 624-3333 ATSS – Same

Field	Name and Address	Telephone No.	Message No.
Physics Math	Alfred Bork Professor of Physics University of California, Irvine Irvine, CA 92717	(714) 833-6945 ATSS - Same	(714) 833-6911 ATSS - Same
Physics Math	Herb Peckham Professor of Natural Sciences Gavilan College 5055 Santa Teresa Blvd. Gilroy, CA 95020	(408) 847-1400 ATSS - Same	(408) 847-1400 ATSS - Same
Physics Math Engineering	Joe Marasco, Systems Analyst Fluor Corporation Michelson Drive Irvine, CA 92717	(714) 975-2954 ATSS - Same	(714) 975-2954 ATSS - Same
Physics Optics Graphics Statistics	Robert Lawrence, Instructor Physics Department Sierra College 5000 Rocklin Road Rocklin, CA 95677	(916) 624-3333 ATSS - Same	(916) 624-3333 ATSS - Same
Psychology Test Theory & Statistics Exp'l Simulation	Raul Betancourt Associate Professor of Psychology California State University, Fresno Fresno, CA 93740	(209) 487-2788 ATSS - Same	(209) 487-2691 ATSS - Same
Social Sciences	Denney Van Tassel Coordinator of Services Computer Center University of California, Santa Cruz Santa Cruz, CA 95064	(408) 429-2434 ATSS 529-2434	(408) 429-2434 ATSS 529-2434
Social Sciences Statistics	Gene Geisler Professor of Political Science San Francisco State University San Francisco, CA 94132	(415) 469-1448 ATSS 554-1448	(415) 469-1178 ATSS 554-1178

Catalog of

Programs

C I P

CENTER FOR INFORMATION PROCESSING

CALIFORNIA STATE UNIVERSITY, FRESNO

25

CATALOG

of

INSTRUCTIONAL MATERIALS

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Second Edition, 1977-78

INTRODUCTION

The Catalog of Instructional Programs was initially developed as a comprehensive guide to courseware available on the PDP 11/45 timesharing system at California State University, Fresno. Like the first edition, the development of the second edition of this publication was a major effort in collecting, classifying, distributing, evaluating, and re-writing of computer programs so as to double the size of the library of evaluated, restructured programs.

As in last year's catalog, program abstracts are presented for those programs determined by faculty evaluators to be of value as a supplement to course content. Each program considered for inclusion was first reviewed by one or more faculty member, and rated from one to four, depending upon the program's value as a learning or teaching tool. Those programs receiving a three or four rating were completely rewritten in a structured, basic BASIC — thoroughly documented and tested. Hopefully, the programs should be easy to modify to fit particular learning situations, easy to maintain on the PDP 11/45, and easy to transport to other computer systems.

E. M. Green, Acting Assistant Director
for Instruction and Research

ACKNOWLEDGEMENT

Many thanks are due to the Center staff members who participated in this project, especially David Moor and Marilyn Meyers. A special thanks also goes to the student programmers listed in the appendices whose time and energy was given to restructuring of the additional programs. Finally, grateful appreciation goes to the many CSUF faculty members who served as program evaluators, and whose names appear both in the appendices and as a part of the program documentation throughout the catalog.

EMG

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Programs Developed for First Edition

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New Programs Developed for Second Edition

Program Name: ADSIM

Descriptive Title: A Program to Test Potential Decisions for the
Simulation Game ADSIM

Applicable Field: Management

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
    and Ratings: Lanny Ryan, Lecturer, Management & Marketing (3)

Origin of the Program: California State University, Fresno

Program Description:

Educational Description: Program ADSIM was designed to be used in
conjunction with a batch computer program, also called ADSIM, which
runs on a Control Data Corporation 3150 computer system. The interactive
version allows students to evaluate ahead of time what effect their
decisions will have on certain calculations performed by the batch
program. The program is appropriate for use by college students
enrolled in beginning or intermediate level management courses. It
does not necessarily need to be used in conjunction with the batch
simulation, since by itself it provides a good example of simulation
in a production environment. It teaches students to think in overall
systems terms and teaches them the use of management principles. Students
should obtain a copy of the ADSIM manual, written by David C. Anderson,
at California State University, Fresno.

Technical Description: Program ADSIM is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
Extended) Version 6A operating system. The computer system has a 64K
word memory main frame with one RP04 disk, one TU09 tape drive, and one
300 lpm line printer.

The program is approximately 175 statements in length and requires 6K
user core area. There are no large data files associated with this
program.

The program uses the following special system functions: TAB, CVT$$,
CHR$.

Recommended Usage Procedure:

This program should be used as a supplement to other homework assignments.
If used in conjunction with the batch simulation program, approximately
one hour per week is required to effectively utilize the program. If used
as an example of production simulation, one hour of time should be
sufficient.

The program could be expanded to provide a more complete estimation
of the results of the decisions made by the students. In its current
state, the program is somewhat limited.

How to Access the Program: LIB ADSIM

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ANIMAL

Descriptive Title: Interactive Computer Learning Simulation

Applicable Field(s): Education

Faculty Evaluator   Terry G. Newell, Associate Professor, Psychology
    and Rating: (3)

Origin of the Program: DECUS Application Library

Program Description:

    Educational Description: This program is appropriate for lower division
    education students and demonstrates heuristic computer learning and
    queing techniques. The program stores learning information based on
    interactive questions supplied by the user which the program uses later
    in determining the thoughts of the user.

    Technical Description: Program ANIMAL is written in Digital Equipment
    Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
    computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
    Extended) Version 6A operating system. The computer system has a 64K
    word memory main frame with one RP04 disk, one TU09 tape drive, and
    one 300 lpm line printer.

    The program is approximately 250 statements in length and requires
    a 6K user core area.

    The program uses the following special system functions: CHR$ (for
    manipulation of ASCII character codes) and CVT$$ (to handle upper and
    lower case inputs).

Recommended Usage Procedure:

    This program should be used to demonstrate computer learning as a
    simulation or interest generating program by departments beginning
    to introduce timesharing to their faculty.

How to Access the Program: LIB ANIMAL

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ANVAR3

Descriptive Title: Two way Analysis of Variance

Applicable Fields: Business, Education, Psychology

Faculty Evaluator   D. Star Mattoon, Lecturer, Accounting & Quantitative Studies
    and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

   Educational Description: Program ANVAR3 is appropriate for use by
   college students enrolled in upper division statistics courses at an
   intermediate level.   The program calculates an F-ratio and the number
   of degrees of freedom for two-dimensional matrix of data input by the
   student.   The program demonstrates how degrees of freedom and F-ratios
   compare between different data sets.   Students should have some back-
   ground in elementary statistics before attempting to use this program

   Technical Description: Program ANVAR3 is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
   Extended) Version 6A operating system.   The computer system has a
   64K word memory mainframe with one RP04 disk, one TU02 tape drive, and
   one 300 lpm line printer.

   The program is approximately 240 statements in length and requires an
   8K user core area.   The program also requires approximately 15 blocks
   of disk storage for data files.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVTS$ (to handle upper and
   lower case inputs).   An appropriate reference is Chapter 18 on Factorial
   Designs from Statistical Inference - Volume I by Jerome C. R .j
   published by Edwards Brothers, Inc., Ann Arbor, Michigan (1966)

Recommended Usage Procedure:

   This program should be used to demonstrate concepts covered in classroom
   lectures and in the textbook.   Students should plan to devote three or
   four half-hour sessions to running the program.

How to Access the Program: LIB ANVAR3

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ANVAR4

Descriptive Title: Two-way Analysis of Variance with Replications

Applicable Fields: Business, Education, Psychology

Faculty Evaluator   D. Stan Mattoon, Lecturer, Accounting & Quantitative Methods
     and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

> Educational Description: Program ANVAR4 is appropriate for use by
> college students enrolled in upper division statistics courses at
> an intermediate level. The program calculates an F-ratio and the
> number of degrees of freedom for two-dimensional matrix of data input
> by the student. The program demonstrates how degrees of freedom and
> F-ratios compare between different data sets. Students should have
> some background in elementary statistics before attempting to use
> this program.

> Technical Description: Program ANVAR4 is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
> Version 6A operating system. The computer system has a 64K word memory
> main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
> line printer.

> The program is approximately 240 statements in length and requires an
> 8K user core area. The program also requires approximately 15 blocks
> of disk storage for data files.

> The program uses the following special system functions: CHR$ (for
> manipulation of ASCII character codes) and CVT$$ (to handle upper and
> lower case inputs). An appropriate reference is Chapter 18 on Factorial
> Designs from Statistical Inference - Volume I by Jerome C.R. Li,
> published by Edwards Brothers, Inc., Ann Arbor, Michigan (1964).

Recommended Usage Procedure:

> This program should be used to demonstrate concepts covered in classroom
> lectures and in the textbook. Students should plan to devote three or
> four half-hour sessions to running the program.

How to Access the Program: LIB ANVAR4

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ASSIGN

Descriptive Title: A Program to Demonstrate the Assignment Method
of Linear Programming

Applicable Fields: Management, Operations Research

Faculty Evaluators Mostafa Elhag, Professor, Accounting & Quantitative Methods (4)
and Ratings: Richard Tellier, Assoc. Professor, Management & Marketing (4)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: ASSIGN is a computer program which uses
linear programming to assign men to jobs on a one-to-one basis. The
program is appropriate for students in undergraduate college level
classes in management or operations research at an intermediate level.
Students should already have some background in the nature of assign-
ment problems and how to solve them. The computer does not teach the
concepts but rather demonstrates the application of the assignment
algorithm.

Technical Description: Program ASSIGN is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 330 statements in length and requires an
8K user core area. There are no large data files associated with this
program.

The program consists of four major sections: The main driver, an input
section, a processing section, and an output section. The following
special system functions are used: CVT$$ (to handle upper and lower
case input) and CHR$ (to cause a full screen erase on the CRT).

Recommended Usage Procedure:

The program should be used as an adjunct to homework assignments. Students
should not attempt to use the program until they have some background in
the assignment technique of linear programming.

How to Access the Program: LIB ASSIGN

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: BALSHT

Descriptive Title: A Program to Prepare a Simple Balance Sheet and
Income Statement

Applicable Field: Accounting

Faculty Evaluator   Gerald L. Johnston, Assistant Professor, Accounting and
and Rating: Quantitative Methods (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program BALSHT can be used by anyone needing
basic budgeting skills; i.e., all students whose major or minor area
of interest is business. The program allows students to see the absolute
effects of proportional changes in budget statement items. The program
is appropriate for beginning accounting students at the undergraduate
college level. It can be used to demonstrate practical applications
of accounting principles. In general, the program should be introduced
in the second basic accounting course or late in the accounting survey
course.

Technical Description: Program BALSHT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TC09 tape drive, and one 300 lpm
line printer.

The program is approximately 400 statements in length and requires an
8K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

The program should be used as an application of skills learned in the
classroom and through homework assignments. A student should have had
two to three hours classroom experience and another two to three hours
of homework assignments prior to using the computer program. Approxi-
mately one-half hour should be set aside for running the program. The
program does not teach the concepts involved but it allows the student
to drill to test his own understanding.

Students should be well prepared by the instructor and follow-up should
be done to ensure that the student has grasped the concepts. It would
be easy for the student merely to input data without learning what the
program is doing.

How to Access the Program: LIB BALSHT   38

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: BOND

Descriptive Title: A Program to Test Understanding of Various Types
of Chemical Bonding

Applicable Field: Chemistry

Faculty Evaluators David Zellmer, Associate Professor, Chemistry (3)
and Ratings: Stan Ziegler, Professor of Chemistry (3)

Origin of the Program: Unknown

Program Description:

Educational Description: Program BOND presents the physical properties,
melting points and boiling points, of several compunds and asks the
student to determine the type of intra- and inter-molecular bonding.
The student is given a list of the possible types. The program is
appropriate for freshmen chemistry students, but it requires that
they be familiar with bonding concepts. The program tests their
comprehension of those theories.

The program requires approximately one-half hour and should be used as
a supplement to a freshman chemistry text.

Technical Description: Program BOND is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 50 statements in length and requires 4K
user core area. There are three data files associated with this
program: BOND.DAT is 5 blocks; BOND.TTL is 2-4 blocks; and BOND.INT
is 2-4 blocks in length.

System variables ERR and ERL are used for error trapping. The RESUME
command is used to return to the statement where the error occurred.

Recommended Usage Procedure:

The program should be used as a drill for students to study their
comprehension of concepts learned in class and by studying the text.

How to Access the Program: LIB BOND

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: BOUNCE

Descriptive Title: Simulation of Bouncing Ball to Demonstrate Effects
                     of Gravity and Co-efficients of Elasticity

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (3)
       and Ratings: Hugh A. Williamson, Professor of Physics (2)

Origin of the Program: DECUS Application Library

Program Description:

   Educational Description: Program BOUNCE is appropriate for use by
   college students enrolled in lower division physics courses at the
   beginning level. The program simulates the throwing of a ball. The
   student specifies the velocity of the ball, the co-efficient of
   elasticity, and the time increments to be used in "strobing" the ball's
   flight. The program will then print a graph based on height and time
   which the ball would follow in theory. Students should have some
   background in elementary physics before attempting to use this program.

   Technical Description: Program BOUNCE is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
   Extended) Version 6A operating system. The computer system has a 64K
   word memory main frame with one RP04 disk, one TU09 tape drive, and
   one 300 lpm line printer.

   The program is approximately 180 statements in length and requires a
   6K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to demonstrate concepts
   covered in classroom lecture and in the textbook. Students should
   schedule two or three five minute sessions to running this program.

How to Access the Program: LIB BOUNCE

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: BUDGET

Descriptive Title: A Program to Generate a Departmental Budget

Applicable Field: Cost Accounting

Faculty Evaluator   Gerald L. Johnston, Assistant Professor, Accounting and
    and Rating: Quantitative Methods   (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: BUDGET is a program which prepares a
budget for one department based on a student's cost inputs in
several different categories. The program is appropriate for use
by advanced cost accounting students taking undergraduate college
level courses. The program allows extensive detail work by the
student. Students should have a good cost accounting background
before attempting to use the program.

Technical Description: Program BUDGET is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

The program is approximately 400 statements in length and requires
an 8K user core area. There are no large data files associated with
this program.

Recommended Usage Procedure:

The program should be used as an adjunct to other homework assignments.
Students should have ten to twelve hours of preparation in class and/or
homework assignments before using the computer program. At least one
case should be done manually in the same format so that the student is
familiar with the relationships involved. The instructor should follow
up to ensure that the student understands the assumptions and relation-
ships involved, otherwise the program will quickly lose its effectiveness.

How to Access the Program: LIB BUDGET

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CALORI

Descriptive Title: A Simple Thermodynamics Exercise

Applicable Fields: Chemistry, Physics

Faculty Evaluators   David Zellmer, Associate Professor, Chemistry (3)
   and Ratings: Stan Ziegler, Professor of Chemistry (2)

Origin of the Program: Digital Equipment Compι   Users Society (DECUS)

Program Description:

> Educational Description: Program CALORI is a simple physical
> chemistry program which tests the student's ability to calculate
> the change in heat content of one breaker of water or alcohol when
> mixed with another.   The program is suitable for college freshman
> chemistry students, and possibly could be used by non-majors in a
> physical chemistry course.   The program is primarily a drill routine
> and does not require any particular preparation.

> Technical Description: Program CALORI is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
> Version 6A operating system.   The computer system has a 64K word memory
> main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
> line printer.

> The program is approximately 135 statements in length and requires a
> 5K user core area.   There are no large data files associated with
> this program.

> The program uses the following special system functions: CHR$ and
> CVT$$.

Recommended Usage Procedure:

> The program should be assigned as an addition to other homework problems.
> Only one ten minute session is required to use it.   This type of program
> will become more useful as others similar to it are added to the computer
> system.   Right now, this constitutes only one homework problem, and a
> rather simple one at that.

How to Access the Program: LIB CALORI

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CEMGEN

Descriptive Title: Chemistry Test Question Generator

Applicable Field: Chemistry

Faculty Evaluators   David L. Zellmer, Associate Professor of Chemistry (3)
    and Ratings: Stanley M. Ziegler, Professor of Chemistry (2)

Origin of the Program: M.L. Cole - Digital Equipment Corporation

Program Description.

Educational Description: CEMGEN is appropriate for use by Chemistry
educators for gene. iting test questions and keyed answers in intermediate
chemistry. Individualized test questions based on a name file can be
generated for specific students at various levels of accomplishments.

Technical Description: Program CEMGEN is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
Extended) Version 6A operating system. The computer system has a 64K
word memory main frame with one RP04 disk, one TU09 tape drive, and
one 300 lpm line printer.

The program is approximately 494 statements in length and requires an
8K user core area (16 bit word size). The program requires approximately
five blocks of disk storage for data files.   .

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used by educators as . supplement to course
content to evaluate student progress through the generation of typical
chemistry problems and analysis.

How to Access the Program: LIB CEMGEN

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CHARGE

Descriptive Title: Millikan Oil Drop Experiment - Simulation on the
                      Change to Mass

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (2)
    and Ratings: Hugh A. Williamson, Professor of Physics (3)

Origin of the Program: Huntington I Computer Program Library

Program Description:

Educational Description: CHARGE is a program which uses the experiments
of R. A. Millikan (1911) to determine the change in voltage drop across
the theoretical experimental apparatus and compute the vertical acceler-
ation acting on an oil drop. This program is appropriate for use by
college students enrolled in intermediate physic courses. Students
should have some background in elementary physics before attempting to
use this program.

Technical Description: Program CHARGE is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
Extended) Version 6A operating system. The computer system has a 64K
word memory main frame with one RP04 disk, one TU09 tape drive, and
one 300 lpm line printer.

The program is approximately 214 statements in length and requires a
6K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used to demonstrate concepts covered in classroom
lectures and in the textbooks, and to supplement course content to better
demonstrate and understand the relationships which the program is based
on. Students should plan to devote two or three half-hour sessions to
running the progra .

How to Access the Program: LIB CHARGE

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CHISQS

Descriptive Title: Computes the Chi-square Value for an
m x n table

Applicable Fields: Business Statistics, Psychology, Math

Faculty Evaluator   Marilyn Meyers, Lecturer, Accounting & Quantitative Methods*
and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program CHISQS computes the Chi-square value
for a table of input data, entered by the student. The program is
appropriate for college level students in any course which requires
statistical testing of a hypothesis on a very elementary level. The
program can be used to teach students how statistical analysis of
data relates to hypothesis testing, and it relieves the student from
doing the tedious mathematical calculations by hand. The program
requires general knowledge of the Chi-square test.

Technical Description: Program CHISQS is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
Extended) Version 6A operating system. The computer system has a 64K
word memory main frame with one RP04 disk, one TC09 tape drive, and one
300 lpm line printer.

The program is approximately 180 statements in length and requires an
8K user core area. In addition, the program requires approximately
12 blocks of disk for data files.

This program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

An appropriate reference is Chapter 22, "Multinomial Sampling," from
Statistical Inference - Volume I by Jerome C. R. Li, published by
Edwards Brothers, Inc., Ann Arbor, Michigan (1964).

Recommended Usage Procedure:

The program should be used as an optional learning tool for students
first learning to use statistical analysis. Students should be given
a fairly solid background in the use of the Chi-square before being
given assignments on the computer, otherwise they may misinterpret the
results.

How to Access the Program: LIB CHISQS   45

* Mrs. Meyers is presently a Programmer in the Center for Information Processing

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CORMAT

Descriptive Title: Computes a Correlation Matrix from Raw Data

Applicable Fields: Business, Psychology, Math, Sociology

Faculty Evaluator   Marilyn Meyers, Lecturer, Accounting & Quantitative Methods *
    and Rating: (4)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program CORMAT is appropriate for use in
any college level course where students are concerned with analyzing
data to determine if there is any interrelation between variables.
The program requires the students to have some background in statistical
analysis, preferable at least one course. The program assists the
student in learning how to discern the significant relationships
between variables. The program itself handles the tedious calculations
so that the student can concentrate on the concepts involved.

Technical Description: Program CORMAT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on DEC's PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/
Extended) Version 6A operating system. The computer system has a 64K
word memory main frame with one RP04 disk, one TU09 tape drive, and
one 300 lpm line printer.

The program is approximately 400 statements in length and requires an
8K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

Computer runs should be assigned as a required project with pre-defined
values. Students should anticipate spending three or four hours in
class learning the concepts involved and another ten hours out of class
doing homework problems which would include one or two hours of CORMAT
runs.

How to Access the Program: LIB CORMAT

* Mrs. Meyers is presently a Programmer in the Center for Information Processing

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: CURFIT

Descriptive Title: Least Squares Curve Fit

Applicable Field: Statistics

Faculty Evaluators   Richard D. Tellier, Associate Professor, Management & Mktg. (2)
   and Ratings: Mostafa Elhag, Professor, Accounting & Quantitative Methods (4)

Origin of the Program: Project Delta Statistics Program

Program Description:

Educational Description: This program performs the least squares curve
fit to six functions.   The points can be fitted to hyperbolic, linear,
exponential, and power functions.   A maximum of 200 data pairs may be
entered.   The functions available for fittings are:

1.   Y = A+B (x)   4.   Y = Z+B 1 x
2.   Y = A EXP (B**)   5.   Y = 1 1 (A+B*X)
3.   Y = A* (X**B)   6.   Y = X/(A+B*X)

Technical Description: Program CURFIT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system.   The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

The program is approximately 499 statements in length and requires an
11K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used to supplement classroom lectures and text
homework.   A complete explanation of curve fit should preceed any
assignments utilizing this program.   The program itself does not teach
the concepts involved, but merely applies them to solve the problem.

How to Access the Program: LIB CURFIT

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: DAYREQ

Descriptive Title: Twenty-four Hour Calorie Analysis Program

Applicable Field: Home Economics - Nutrition

Faculty Evaluator   Ratana S. Newsome, Professor of Home Economics
     and Rating: (3)

Origin of the Program: Computer Corps, Jack Rhine - San Francisco
                         State University. This program can only be
                         distributed throughout the CSUC System. Those
                         wanting this program may contact Computer
                         Corps in San Francisco.

Program Description:

    Educational Description: DAYREQ is a computer program which determines
    if your diet meets the required daily allowance for your intake of
    food during a specific 24-hour period. Its analysis is based on your
    age, weight, and activity. Students should have a basic knowledge of
    dietetics before using this program. The program can also be used as
    an interesting demonstration.

    Technical Description: Program DAYREQ is written in Digital Equipment
    Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
    computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
    Version 6A operating system. The computer system has a 64K word memory
    main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
    line printer.

    The program is approximately 250 statements in length and requires a
    7K user core area.

    The program uses the following special system functions: CHR$ (for
    manipulation of ASCII character codes) and CVT$$ (to handle upper and
    lower case inputs).

Recommended Usage Procedure:

    This program should be used as a supplement to classroom lectures. It
    can be used as an interesting demonstration program in workshops or
    seminars. Students should plan on devoting two half-hour sessions
    using the program to get a thorough understanding of the concepts it
    is demonstrating.

How to Access the Program: LIB DAYREQ

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: DECAY1

Descriptive Title: Demonstrates the Principles of Radioactive Decay
and Half-Life

Applicable Field: Physics

Faculty Evaluators Donald E. Holmes, Associate Professor, Physics (4)
and Ratings: Hugh A. Williamson, Professor, Physics (3)

Origin of the Program: Huntington I Computer Program Library

Program Description:

Educational Description: This program is designed for use by college
students enrolled in intermediate physics courses dealing with the
study of radioactive materials decomposing at a constant rate
characteristic to each element (half-life). Students should have some
background in physics before attempting to use this program.

Technical Description: Program DECAY1 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

The program is approximately 355 statements in length and requires an
8K user core area. The program also requires approximately 19 blocks
of disk storage for data files.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used to demonstrate concepts covered in classroom
lectures and in the textbook. Students should plan to devote a minimum
of three half-hour sessions to running the program.

How to Access the Program: LIB DECAY1

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: DECAY2

Descriptive Title: Radioactive Decay Analysis

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (2)
    and Ratings: Hugh A. Williamson, Professor, Physics   (3)

Origin of the Program: Huntington I Computer Program Library

Program Description:

Educational Description: DECAY2 is a program used for analyzing
radioactive materials in three ways:
1. Calculates half-life of a sample based on two geiger
counter readings.
2. Calculates how much of a radioactive sample will
remain after a given amount of time.
3. Print a table showing the relationship of mass vs.
time of a radioactive sample.
This program is appropriate for high school or college students in
intermediate physics.

Technical Description: Program DECAY2 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 250 statements in length and requires an
8K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as an adjunct to course content and homework
assignments. Students should plan on spending a minimum of two ten
minute sessions applying lecture presentation material to this simulation.

How to Access the Program: LIB DECAY2

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: DEPCOM

Descriptive Title: Depreciation Method Comparison

Applicable Field: Business - Accounting

Faculty Evaluators   David C. Anderson, Professor of Management & Accounting (2)
    and Ratings: Robert J. Piersol, Professor of Management (1)

Origin of the Program: Project Delta

Program Description:

Educational Description: This program is appropriate for high school
students enrolled in beginning business courses dealing with analysis
of depreciation.   DEPCOM computes and prints monthly depreciation by
four methods:
             1.   Straight line
             2.   Double declining balance
             3.   Sum-of-the-years-digits
             4.   150% declining balance
Students should have some background in business accounting before
attempting to use this program.

Technical Description: Program DEPCOM is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system.   The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

The program is approximately 352 statements in length and requires a
9K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used to demonstrate concepts covered in classroom
lectures and in the textbook.   Students should plan to devote a minimum
of two fifteen minute sessions to running this program.

How to Access the Program: LIB DEPCOM

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ELECT1

Descriptive Title: A Simulation of Presidential Elections in the
                      19th Century

Applicable Fields: Political Science, History

Faculty Evaluators   D. Stan Mattoon, Lecturer, Accounting & Quantitative Methods (3)
     and Ratings: Gerald Johnston, Assistant Professor, Accounting & Quantitative
                      Methods (2)

Origin of the Program: Unknown

Program Description:

    Educational Description: Program ELECT1 is a simulation of presidential
    elections in the 1800's which is based on image, party, and factors
    related to political issues. The program is appropriate for use by
    college students in introductory level political science and history
    courses. It demonstrates how a candidate's image, party affiliation and
    stance on issues affect his success in a presidential election.

    Technical Description: Program ELECT1 is written in Digital Equipment
    Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
    computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
    Version 6A operating system. The computer system has a 64K word memory
    main frame with one RP04 disk, one TU09 tape drive, and one 300 lmp
    line printer.

    The program is approximately 400 statements in length and requires
    an 8K user core area. There are no large data files associated
    with this program.

Recommended Usage Procedure:

    This program should be used as a supplemental unit when discussing
    presidential candidates or voting mechanisms as part of the regular
    classroom discussion. Running the computer simulation will require
    approximately one-half hour. The simulation is rather simplistic
    in nature and probably won't hold the student's attention for any
    extended usage, but it is a good example of how computer simulations
    can be used to amplify concepts discussed in class or in the text.

How to Access the Program: LIB ELECT1

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ELECT2

Descriptive Title: A Simulation of Presidential Elections in the
                     Twentieth Century

Applicable Fields: Political Science, History

Faculty Evaluators   D. Star Mattoon, Lecturer, Accounting & Quantitative Methods (3)
    and Ratings: Gerald Johnston, Assistant Professor, Accounting and
                     Quantitative Methods (2)

Origin of the Program: Unknown

Program Description:

   Educational Description: Program ELECT2 is a simulation of presidential
   elections in the 1900's which is based on image, party, and factors
   related to political issues. The program is appropriate for use by
   college students in introductory level political science and history
   courses. It demonstrates how a candidate's image, party affiliation
   and stance on issues affect his success in a presidential election.

   Technical Description: Program ELECT2 is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lmp
   line printer.

   The program is approximately 400 statements in length and requires an
   8K user core area. There are no large data files associated with this
   program.

Recommended Usage Procedure:

   This program should be used as a supplemental unit when discussing
   presidential candidates or voting mechanisms as part of the regular
   classroom discussion. Running the computer simulation will require
   approximately one-half hour. The simulation is rather simplistic in
   nature and probably won't hold the student's attention for any extended
   usage, but it is a good example of how computer simulations can be used
   to amplify concepts discussed in class or in the text.

How to Access the Program: LIB ELECT2

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: ELIZA

Descriptive Title: Artificial Conversational Intelligence in a
Simulated Therapy Situation Using the COmputer
as the Psychotherapist

Applicable Field: Psychology

Faculty Evaluators   Terry G. Newell, Associate Professor, Psychology (4)
and Ratings: George S. Leavitt, Professor of Psychology   (3)

Origin of the Program: Lawrence Hall of Science

Program Description:

Educational Description: ELIZA is appropriate for use by college
students enrolled in lower and upper division psychology courses.
The program acts as a psychotherapist by simulating human intelligence
in a supposed therapy situation. The computer does not teach the
concepts but rather demonstrates the application of therapy under
different conditions. Students should have a good background in
intermediate psychology before attempting to use this program.

Technical Description: Program ELIZA is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 600 statements in length and requires an
11K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as a tool to show examples of different
approach techniques to therapy situations. Students should have a
knowledge of clinical psychology and plan on spending 30 minutes at
the terminal each time this program is used.

How to Access the Program: LIB ELIZA

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: GCPTH

Descriptive Title: Critical Path Analysis, a Technique for Work Scheduling

Applicable Fields: Management, Operations Research

Faculty Evaluators   Mostafa El'   Professor, Accounting & Quantitative Methods (3)
    and Ratings: Richard Tellier, Assoc. Professor, Management & Marketing (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: GCPTH is a computer program to do network
analysis using a critical path method. The program is appropriate for
use in undergraduate college level courses in Production Management and
for Operations Research at an intermediate or advanced level. Students
should have a good background in network analysis before attempting to
use the program. The computer demonstrates the use of the critical
path approach and quickly demonstrates to the student the result of
applying the algorithm to the student's data.

Technical Description: Program GCPTH is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 250 statements in length and requires a
6K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

The program should be used as an adjunct to homework problems. A
complete explanation of network analysis and the critical path method
should precede any assignments utilizing the program. The program
itself does not teach the concepts involved but merely applies them
to solve problems.

How to Access the Program: LIB GCPTH

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: INSTMT

Descriptive Title: Income Statement

Applicable Field: Business - Accounting

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
        and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program: Project Delta Business Program

Program Description:

> Educational Description: The program INSTMT is appropriate for use by
> college students enrolled in low division accounting. The program
> will print a simple income statement and will allow a sensitivity
> analysis on various input. Students should have some background in
> accounting before using this program.

> Technical Description: Program INSTMT is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing Extended)
> Version 6A operating system. The computer system has a 64K memory main
> frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
> printer.

> The program is approximately 385 statements in length and requires an
> 8K user core area.

> The program uses the following special system functions: CHR$ (for
> manipulation of ASCII character codes) and CVT$$ (to handle upper and
> lower case inputs)

Recommended Usage Procedure:

> This program should be used as a supplement to classroom lectures and
> the textbook. Students should plan to devote at least one hour in the
> classroom learning the concepts involved and an additional three hours
> of homework assignments, including about 30 minutes with this program.

How to Access the Program: LIB INSTMT

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: KINEMA

Descriptive Title: Kinetic Energy Relating to the Motion of Material
Bodies and the Forces Associated with Velocity and
Acceleration

Applicable Field: Physics

Faculty Evaluators   David E. Holmes, Associate Professor, Physics   (3)
and Ratings: Hugh A. Williamson, Professor of Physics   (3)

Origin of the Program: Unknown

Program Description:

Educational Description: KINEMA is a simple drill that allows a student
to develop his ability to calculate the height of a thrown object
based on its initial velocity. This program is appropriate for college
level students enrolled in freshman physics courses.

Technical Description: Program KINEMA is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 126 statements in length and requires a
4K user core area. The program also requires approximately six blocks
of disk storage for data files.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

As a drill for elementary physics used as an adjunct to classroom
lectures and laboratory assignments.

How to Access the Program: LIB KINEMA

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LEASE

Descriptive Title: Lease Purchase Methods

Applicable Field: Management

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
    and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program: Written by Darryl Johnson and Dick D'Angelo
    at Bentley College, March, 1973

Program Description:

Educational Description: LEASE is a program appropriate for college
students in beginning business courses. Using this program, students
learn the different methods of calculating a lease purchase using
straight line, sum-of-the-years-digits, and compound interest methods
of amortization.

Technical Description: Program LEASE is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 211 statements in length and requires an
8K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

The program can be used as a supplement to lecture control and
homework assignments. Students should be familiar with the different
methods of lease purchase before using this program.

How to Access the Program: LIB LEASE

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LENS

Descriptive Title· The Mechanics of an Optical Lens

Applicable Field: Physics

Faculty Evaluators Donald E. Holmes, Associate Professor, Physics (4)
    and Ratings: Hugh A. Williamson, Professor, Physics (2)

Origin of the Program: Huntington I Program Library

Program Description:

Educational Description: Program LENS is appropriate for college
students in lower division physics. Using this program, students can
learn the inter-relationships of light and lens. Some knowledge of
the theory of light and optics is necessary before the program can be
used.

Technical Description: Program LENS is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 340 statements in length and requires an
8K user core area. The program also requires approximately 16 blocks
of disk storage for data files.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program can be used as an adjunct to other homework assignments.
Students should be given a minimal amount of preparation before using
this program.

How to Access the Program: LIB LENS

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LINFIT

Descriptive Title: Linear Fit and Correlation

Applicable Fields: Business, Mathematics

Faculty Evaluators   Richard Tellier, Associate Professor, Management & Marketing (2)
    and Ratings: Mostafa Elhag, Professor, Accounting & Quantitative Methods (3)

Origin of the Program: Project Delta

Program Description:

   Educational Description: This program is appropriate for college
   students enrolled in business or mathematics courses. LINFIT computes
   the best linear fit and correlation for a set of values of independent
   variables and their respective dependent variables.

   Technical Description: Program LINFIT is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 320 statements in length and requires
   a 6K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as an adjunct to homework assignments to
   aid the student in understanding the principles of linear fit. Students
   should have a knowledge of statistics and plan on a minimum of three
   15 minute sessions on the terminal using this program.

How to Access the Program: LIB LINFIT

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LINPRO

Descriptive Title: Linear Programming

Applicable Fields: Business, Mathematics, Agriculture, Health Science

Faculty Evaluators   Richard Tellier, Associate Professor, Management & Marketing (2)
     and Ratings: Mostafa Elhag, Professor, Accounting & Quantitative Methods (3)

Origin of the Program: ITS Library

Program Description:

   Educational Description: Program LINPRO is designed to solve any
   linear programming problem of under 20 variables and 26 equations.
   It utilizes the simplex method to solve the problem. LINPRO is
   recommended for several different disciplines at the upper division
   class level. Students should have a working knowledge of linear
   functions before using this program.

   Technical Description: Program LINPRO is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 350 statements in length and requires an
   8K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to classroom lecture.
   Students should plan on spending at least one hour in the classroom
   learning the concepts involved and an additional three hours on home-
   work assignments, including one hour spent with this program.

How to Access the Program: LIB LINPRO

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LNREG1

Descriptive Title: Performs a Simple Linear Regression for one Independent
Variable

Applicable Fields: Business, Math, Psychology, Sociology

Faculty Evaluator Marilyn Meyers, Lecturer, Accounting & Quantitative Methods*
and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program LNREG1 performs linear regression
and linear trend analysis of data. The program is appropriate for
college level students in advanced statistics courses and may also be
used for forecasting and for some intermediate statistics courses.
Students should have a working knowledge of linear functions prior to
using the program. The program itself performs calculations to
demonstrate projecting the future based upon past occurrences.

Technical Description: Program LNREG1 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 225 statements in length and requires a
7K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

The program should be used as a supplemental project. Students
should plan on spending at least one hour in the classroom learning
the concepts involved and an additional three hours on homework
assignments, including about an hour spent with the program.

How to Access the Program: LIB LNREG1

* Mrs. Meyers is currently a Programmer in the Center for Information Processing

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LNTRND

Descriptive Title: Linear Trend Forecasting

Applicable Field: Business - Operations Research

Faculty Evaluators Richard Tellier, Assoc. Professor, Management & Marketing (2)
   and Ratings: Mostafa Elhag, Professor, Accounting & Quantitative Methods (3)

Origin of the Program: Bertley College

Program Description:

   Educational Description: LNTRND is appropriate for college students
   enrolled in intermediate business courses which deal with trend fore-
   casting. LNTRND computes a linear trend forecast with seasonal adjust-
   ment capabilities based on monthly data. Students should have some
   background in forecasting and statistics before using this program.

   Technical Description: Program LNTRND is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 235 statements in length and requires
   a 6K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to classroom lecture and
   an adjunct to homework assignments to show practical applications of
   theoretical knowledge. Students should allow a minimum of three
   15-minute sessions on the terminal to use this program.

How to Access the Program: LIB LNTRND

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LOCKEY

Descriptive Title: A Simulation of the Effects on an Inhibitor on
                     Acetylcholinesterase

Applicable Field: Biology

Faculty Evaluator   David Grubbs, Assistant Professor, Biology
     and Rating: (3)

Origin of the Program: Huntington II Program Library

Program Description:

    Educational Description: LOCKEY is appropriate for college students
enrolled in upper division biology. This program provides the user
with a "laboratory" with which to experiment with several different
inhibitors on acetylcholinesterase. Students should have a thorough
knowledge of this enzyme and the process of hydrolysis.

    Technical Description: Program LOCKEY is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

    The program is approximately 299 statements in length and requires
a 7K user core area.

    The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

    This program should be used as an adjunct to laboratory experiments
dealing with acelytcholinesterase. The student should allow two to
three half hour sessions with this program.

How to Access the Program: LIB LOCKEY

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: LPFLTR

Descriptive Title: Design of a Low Pass Filter

Applicable Field: Engineering - Electronics

Faculty Evaluator   Kandiah Jeyapalen, Associate Professor, Engineering
    and Rating: (3)

Origin of the Program: Hewlett-Packard User's Group

Program Description:

Educational Description: LPFLTR is a model simualtion of different
filter circuits which the user designs to help in understanding the
principles of low pass filters. This program is appropriate for
lower division engineering students enrolled in the electrical
engineering option.

Technical Description: Program LPFLTR is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 172 statements in length and requires a
6K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as an adjunct to classroom lecture and
homework assignments. Students should have at least three hours of
classroom theory before using this program.

How to Access the Program: LIB LPFLTR

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: MARKET

Descriptive Title: A Program to Illustrate Marketing Variables

Applicable Fields: Marketing, Accounting, Management, Economics

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (3)
     and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

   Educational Description: Program MARKET illustrates the allocation of
   fixed costs over goods produced by simulation competition between
   companies. Selling price and advertising costs are two of the primary
   variables. The student can decrease unit costs by increasing volume
   and thus spreading the fixed costs. The program is appropriate for
   use by college students enrolled in courses such as Principles of
   Marketing, Principles of Accounting, Managerial Accounting, Cost
   Accounting, Operations Management, and Introduction to Administration.
   The student can learn to analyze a dynamic environment and determine
   which marketing variable(s) will produce the best results. The program
   demonstrates the influence of high fixed costs on financial results
   and illustrates the importance of inventory control. The program
   provides a dynamic interacting environment in which students can
   increase their awareness of marketing variables.

   Technical Description: Program MARKET is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 320 statements in length and requires an
   8K user core area. There is one main program module, approximately
   20 statements in length, and there are 17 subroutines. There are no
   large data files associated with this program.

   The program uses the following special system functions: CHR$, CVT$$
   and TAB. The use of these functions is documented within the program.

Recommended Usage Procedure:

   Students should have a background in marketing and accounting prior to
   being assigned this program. The most effective way to use the program

would be to assign team numbers to the students and have each
team develop a beginning plan or strategy. They should then report
their findings and discuss any subsequent changes in strategy. The
amount of time required will vary with the team strategies.
Instructors should define clearly what is expected and allow the
students to run the program in a test mode first to make sure they
understand the instructions. The program can be used in conjunction
with the teaching of pricing theory, to illustrate the difficulty
of applying theory in competitive situations.

Students may complain about not knowing what the product is. They
are also likely to feel that too few variables are involved. The
most likely misuse is that students will get caught up in the
competition and neglect to analyze the data in conformance with the
theories being illustrated.

How to Access the Program: LIB MARKET

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: MKBUY

Descriptive Title: A Program to Perform Make-buy Analysis

Applicable Fields: Accounting, Management, Finance

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
   and Ratings: Robert J. Piersol, Professor of Management (3)
                       Lanny Ryan, Lecturer, Management & Marketing (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

   Educational Description: Program MKBUY evaluates problems associated
   with making or buying an item and shows the results of each possible
   course of action in terms of cost effectiveness. The program is
   appropriate for use by college students enrolled in beginning or inter-
   mediate accounting, finance or management courses. It provides a
   comparison of investment alternatives and shows the information necessary
   for the student to make a decision. Students should have some background
   in finance.

   Technical Description: Program MKBUY is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 275 statements in length and requires
   an 8K user core area. There are no large data files associated with
   this program.

   The program uses the following special system functions: CVT$$ and
   CHR$.

Recommended Usage Procedure:

   The program should be used as a homework assignment or as an adjunct to
   a classroom lecture. Approximately 15 minutes per student is the only
   time required.

How to Access the Program: LIB MKBUY

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: MNIDIT

D scriptive Title: A Nutrition Application Program

Applicable Fields: Home Economics - Dietetics

Faculty Evaluator   Ratana S. Newsome, Professor of Home Econo cs
    and Rating: (3)

Origin of the Program: Jack Rhine, San Francisco State Universur/

Program Description:

Educational Description: MNIDIT is appropriate for college students
enrolled in nutrition and dietetics courses. This program performs a
24-hour diet analysis based upon the U.S. Department of Agriculture
Handbook #72 and food codes found in that publication. Students
should be familiar with these materials before attempting to se this
program.

Technical Description: Progi n MNIDIT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 137 statements in length and requires a
7K user core area. The program also uses the virtual input/output
capabilities of the PDP 11/45.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as a supplement in classroom lectures and
homework assignments dealing with recommended daily requirements and
nutrition. Students should allow a minimum of three 15-minute sessions
on the terminal to use this model.

How to Access the Program: LIB MNIDIT

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: MOLE

Descriptive Title: A Simple Drill in Gram/Mole Conversion

Applicable Field: Chemistry

Faculty Evaluators   Dave Zellmer, Associate Professor, Chemistry (3)
   and Ratings: Stan Ziegler, Professor of Chemistry (2)

Origin of the Program: Unknown

Program Description:

Education Description: MOLE is a simple drill that allows the student
to test his ability to calculate a gram formula weight and then convert
moles to grams. The program is appropriate for college level students
enrolled in freshman Chemistry courses.

Technical Description: Program MOLE is written in D; 'tal Equipment
Corporation'. (DEC) BASIC PLUS language and runs on a ? PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
version 6A operating system. The computer system has a 64K work memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 375 statements in length and requires
an 8K user core area.

There are no large data files associated with this program.

Recommended Usage Procedure:

The program should be used as an addition to other homework assignments
and requires one or two sessions of five minutes each.

How to Access the Program: LIB MOLE

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: NEWTN2

Descriptive Title: Newton's Second Law of Motion

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (4)
   and Ratings: Hugh A. Williamson, Professor, Physics (2)

Origin of the Program: Huntington 1 Program Library

Program Description:

Educational Description: This program is appropriate for college students
enrolled in lower division physics courses. NEWTN2 develops a "feel" for
Newton's second law F=MA through a simulation of interrelated circumstances.

Technical Description: Program NEWTN2 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 400 statements in length and requires an 8K
user core area.

The program uses the following special system functions: CHR$$ (for manipu-
lation of ASCII character codes) and CVT$$ (to handle upper and lower case
inputs).

Recommended Usage Procedure:

This program should be an adjunct to homework assignments in developing the
interrelationship of mass and acceleration to force. Students snould plan
on a minimum of two fifteen-minute sessions to study those relationships
surrounding this law of physics.

How to Access the Program: LIB NEWTN2

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: NORTON

Descriptive Title: Astronomical Ephemeris Program

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (1)
     and Ratings: Hugh A. Williamson, Professor, Physics   (4)

Origin of the Program: DECUS Program Library

Program Description:

Educational Description: This program is designed for use by college
students enrolled in astronomy courses. NORTON will provide such
information as where a planet or an asteroid can be found on a particular
date, what is the velocity and orbital longitude of different planets,
and orbital elements of objects.

Technical Description: Program NORTON is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 450 statements in length and requires an
8K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program is a tool which can be used as an aid in astronomical
studies. Students should have a substantial knowledge of astronomy
and plan on 15 minutes at the terminal each time the program is used.

How to Access the Program: LIB NORTON

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: NZYM2

Descriptive Title: A Study of Reaction Rates in Enzyme Chemistry

Applicable Field: Biochemistry

Faculty Evaluator David E. Grubbs, Assistant Professor, Biology
        and Rating: (3)

Origin of the Program: Huntington I Program Library

Program Description:

Educational Description: NZYM2 is a program designed to enable the
user to see the effects on the rate of reaction within a system con-
trolled by enzymes. The reaction rate will vary as the environmental
conditions vary, such as PH, concentration of enzymes, and temperature.
This program is appropriate for college students enrolled in chemistry
and biology at the intermediate levels.

Technical Description: Program NZYM2 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTSS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 277 statements in length and requires a
7K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as a supplement to classroom lecture and
laboratory experiments. Knowledge of enzymes and their properties is
necessary before using this program. Students should plan on spending
two half-hour sessions using this program to study enzymes.

How to Access the Program: LIB NZYM2

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: OVHVR

Descriptive Title: Overhead Variance

Applicable Fields: Business, Cost Accounting, Production

Faculty Evaluators David C. Anderson, Professor, Management & Accounting (2)
      and Ratings: Robert J. Piersol, Professor of Man gement (3)

Origin of the Program: Written by Darryl Johnson & Richard D'Angelo
                        Bentley Col. _e, 1972

Program Description:

   Educational Description: This program is appropriate for college
   students enrolled in business courses dealing with cost analysis
   and production. OVHVR calculates overhead variances using the single
   two variance, three variance, and four variance methods for a typical
   production environment.

   Technical Description: Program OVHVR is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lp-
   line printer.

   The program is approximately 265 statements in length and requires an
   8K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to classroom lecture
   and homework assignments. Students should plan on a minimum of two
   15-minute sessions to use this program.

How to Access the Program: LIB OVHVR

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PENFUN

Descriptive Title: Pension Fund

Applicable Field: Management

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
    and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program: Written by Darryl Johnson and Richard D'Angelo
                        Bentley College, February 1973

Program Description:

    Educational Description: PENFUN is designed for use by students
    enrolled in business courses which deal with pension cost. This
    program computes the amortization of past service pension costs.

    Technical Description: Program PENFUN is written in Digital Equipment
    Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
    computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
    Version 6A operating system. The computer system has a 64K word memory
    main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
    line printer.

    The program is approximately 205 statements in length and requires an
    8K user core area.

    The program uses the following special system functions: CHR$ (for
    manipulation of ASCII character codes) and CVT$$ (to handle upper and
    lower case inputs).

Recommended Usage Procedure:

    This program should be used as an adjunct to classroom discussions
    dealing with amortization of pension costs. Two five-minute sessions
    will be needed to use this program as an understanding aid.

How to Access the Program: LIB PENFUN

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PERT

Descriptive Title: A Program to Solve PERT (Project Evaluation and
Review Technique) Networks

Applicable Fields: Management, Operations Research

Faculty Evaluators Mostafa Elhag, Professor, Accounting & Quantitative Methods (3)
and Ratings: Richard Tellier, Assoc. Professor, Management & Marketing (3)

Origin of the Program: Unknown

Program Description:

Educational Description: PERT is a computer program used to determine
critical paths, variances, stacks, etc., for a network analysis. The
program is appropriate for students in undergraduate college level
courses in management or operations research at an intermediate or
advanced level. The program requires a good knowledge of PERT appli-
cations. It does not teach the concepts but applies the algorithm
to the student's data and performs the required analysis.

Technical Description: Program PERT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 400 statements in length and requires an
8K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

The program should be used as an adjunct to homework assignments. A
complete explanation of the use of PERT networks should precede any
attempted use of the program.

How to Access the Program: LIB PERT

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PHOTEL

Descriptive Title: Photoelectric Effect

Applicable Field: Physics

Faculty Evaluators Donald E. Holmes, Associate Professor, Physics (3)
    and Ratings: Hugh J. Williamson, Professor, Physics (3)

Origin of the Program: Huntington I Program Library

Program Description:

   Educational Description: PHOTEL is designed to simulate an experiment
   demonstrating the photoelectric effect by providing the user with tables
   of emitting current for any one of five selectable metals, where an
   intensity over a predetermined range of wave lengths is specified. This
   program is appropriate for college students at the lower division level
   of physics courses studying this subject.

   Technical Description: Program PHOTEL is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
   Version CA operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 186 statements in length and requires a
   5K user core area.

   The program uses the following special system functions: CHR$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and
   lower case inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to laboratory experiments
   dealing with photoelectric effect. Students should plan on a minimum
   of three 15 minute sessions to practice using the program as a learning
   tool.

How to Access the Program: LIB PHOTEL

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: POLFIT

Descriptive Title: A Program to Perform Polynomial Regression Analysis

Applicable Fields: Business, Education, Psychology

Faculty Evaluator   D. Stan Mattoon, Lecturer, Accounting & Quantitative Methods
    and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program POLFIT performs a polynomial regression
analysis of a student's data. Computer variance-covariance matrix,
regression factors, and Durbin-Watson value. The program is appropriate
for use by college students enrolled in upper division statistics
courses at an intermediate level. The program demonstrates how regression
factors vary among different sets of data.

Technical Description: Program POLFIT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 350 statements in length and requires an
8K user core area. There are no large data files associated with this
program.

Recommended Usage Procedure:

The program should be used to demonstrate concepts learned in the
classroom. Approximately four sessions of 15 minutes each are required
to run the program and to adequately cover the concepts involved.
Students should be required to have a solid background in basic statistics
before attempting to use this program since the instructions are some-
what inadequate.

How to Access the Program: LIB POLFIT

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: POLUTE

Descriptive Title: Water Polution

Applicable Fields: Biology - Ecology

Faculty Evaluator   David E. Grubbs, Assistant Professor, Biology
      and Rating: (3)

Origin of the Program: Huntington II Program Library

Program Description:

Educational Description: POLUTE deals with the common day problem
of the effects of sewage and industrial polutants on the oxygen
concentration in natural bodies of water. This program is appropriate
of intermediate, upper division biology courses dealing with ecology
and polution.

Technical Description: Program POLUTE is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 450 statements in length and requires
a 10K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper
and lower case inputs).

Recommended Usage Procedure:

This program should be used as a simulation model for studying the
effects of polutants on oxygen content in water. A thorough knowledge
of cause and effect are necessary before using this program. Three
half hour sessions are needed to use this program for best results.

How to Access the Program: LIB POLUTE

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PRBSTA

Descriptive Title: A Program to Calculate Statistical Probabilities
Based on Known, Simple Probabilities

Applicable Fields: Statistics, Math

Faculty Evaluator   Marilyn Meyers, Lecturer, Accounting & Quantitative Methods*
and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program PRBSTA is appropriate for college
level students in beginning statistics courses. Using the program,
students can learn to correctly interpret the calculated probabilities
and the interrelationships of various probabilities. Some knowledge of
the theory of probability is necessary before the program can be used.

Technical Description: Program PRBSTA is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 275 statements in length and requires an
8K user core area.

There are no large data files associated with this program.

The program uses special system function CHR$ to cause a full screen
erase.

Recommended Usage Procedure:

The program can be used as an adjunct to other homework assignments.
Students will only need minimal preparation.

How to Access the Program: LIB PRBSTA

* Mrs. Meyers is currently a Programmer in the Center for Information Processing

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PRIMEV

Descriptive Title: Price and Quantity Variance

Applicable Field: Cost Accounting

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
    and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program. Bentley College, 1973

Program Description:

Educational Description: This program is appropriate for college
students enrolled in production management and cost analysis courses
dealing with those variables found in producing a marketable product.

Technical Description: Program PRIMEV is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape.drive, and one 300 lpm
line printer.

The program is approximately 394 statements in length and requires
an 8K user core area.

The program uses the following special system functions: CHR$ (for
manipulation of ASCII character codes) and CVT$$ (to handle upper and
lower case inputs).

Recommended Usage Procedure:

This program should be used as a supplement to classroom discussion as
a tool to help understand the inter-relationship of cost and production.

How to Access the Program: LIB PRIMEV

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: PRJCTL

Descriptive Title: Projectile Firing Simulation

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (3)
    and Ratings: Hugh A. Williamson, Professor of Physics (2)

Origin of the Program: Huntington I Program Library

Program Description:

    Educational Description: PRJCTL is a simulation program designed
    for college students enrolled in lower division physics courses
    dealing with angle of attack and force.

    Technical Description: Program PRJCTL is written in Digital Equipment
    Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
    computer system under the PSTS/E (Resource-Sharing, Time-Sharing/Extended)
    Version 6A operating system. The computer system has a 64K word memory
    main frame with one PR04 disk, one TU09 tape drive, and one 300 lpm
    line printer.

    The program is approximately 200 statements in length and requires an
    8K user core area.

    The program uses the following special system functions: CHR$ (for
    manipulation of ASCII character codes) and CVT$$ (to handle upper and
    lower case inputs).

Recommended Usage Procedure:

    This program is a learning tool designed to reinforce the inter-relations
    of force, gravity, and angle of attack. Two or three sessions of five
    minutes should be used by the student to study the relationships.

How to Access the Program: LIB PRJCTL

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: REFLECT

Descriptive Title: Reflected Light

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (3)
 and Ratings: Hugh A. Williamson, Professor, Physics (3)

Origin of the Program: Huntington I Program Library

Program Description:

Educational Description: This program is appropriate for college
students enrolled in lower division physics courses which are studying
the principles of light. REFLECT demonstrates the least time principle
of reflected light and its relationship to light-path distance.

Technical Description: Program REFLECT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 264 statements in length and requires an
8K user core area.

The program uses the following special system functions: CHR$ (for manipu-
lation of ASCII character codes) and CVT$$ (to handle upper and lower case
inputs).

Recommended Usage Procedure:

This program should be used as a supplement to laboratory experiments
dealing with sinwaves and their characteristics. Students should plan on
three fifteen-minute sessions using this program.

How to Access the Program: LIB REFLECT

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: SALES

Descriptive Title: SALES

Applicable Field: Marketing

Faculty Evaluators   David C. Anderson, Professor, Management & Accounting (2)
   and Ratings: Robert J. Piersol, Professor of Management (3)

Origin of the Program: Project Delta Business Program

Program Description:

   Educational Description: SALES is appropriate for college students enrolled
   in business marketing courses which deal with sales. This program will
   print a monthly table for a salesman with his base salary, incentive dollars,
   and prospective billing totals (amount of sales).

   Technical Description: Program SALES is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45 computer
   system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended) Version
   6A operating system. The computer system has a 64K word memory main frame
   with one RP04 disk, one TU09 tape drive, and one 300 lpm line printer.

   The program is approximately 167 statements in length and requires an 8K
   user core area.

   The program uses the following special system functions: CHR$ (for manipu-
   lation of ASCII character codes) and CVT$$ (to handle upper and lower case
   inputs).

Recommended Usage Procedure:

   This program should be used as a supplement to classroom discussion.

How to Access the Program: LIB SALES

CALIFORNIA STATE UNIVERSITY, FRESNO
Center for Information Processing

Program Name: SCORES

Descriptive Title: Test Score Analysis

Applicable Fields: All

Faculty Evaluator   D. Stan Mattoon, Lecturer, Accounting & Quantitative Methods
      and Rating: (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

> Educational Description: Program SCORES is an instructor's tool
> which allows analysis of up to 25 test scores. Mean, standard
> deviation, Z-score and T-score are calculated. Instructors should
> be familiar with the use of both types of score and how to apply
> the results.

> Technical Description: Program SCORES is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
> Version 6A operating system. The computer system has a 64K word memory
> main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
> line printer.

> The program is approximately 300 statements in length and requires a
> 7K user core area. There are no large data files associated with
> this program.

Recommended Usage Procedure:

> While this program is intended as an instructor's tool, it can
> also be used to teach students an effective application of
> statistical analysis of data. If used in this manner, it would be
> appropriate for introductory level college courses in statistics.

How to Access the Program: LIB SCORES

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name. SLITS

Descriptive Title: Diffraction of Light

Applicable Fields: Physics

Faculty Evaluators Donald E. Holmes, Associate Professor, Physics (2)
and Ratings: Hugh A. Williamson, Professor Physics (3)

Origin of the Program: Huntington II

Program Description:

> Educational Description: This program is appropriate for college students
> enrolled in lower division physics classes studying the diffraction of
> light   SLITS demonstrates, through the use of plots, interference patterns
> resulting from the diffraction of light.

> Technical Description: Program SLITS is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
> Version 6A operating system. The computer system has a 64K word memory
> main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
> printer.

> The program is approximately 260 statements in length and requires a 7K
> user core area.

> The program uses the following special system functions: CHR$ (for manipu-
> lation of ASCII character codes) and CVT$$ (to handle upper and lower case
> inputs).

Recommended Usage Procedure:

> This program should be used as an adjunct to laboratory experiments to help
> understand and evaluate interference patterns of lightwaves. Students
> should have a basic knowledge of this subject and should spend a minimum
> of three five-minute sessions using this program as a learning tool.

How to Access the Program: LIB SLITS

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: SNELL

Descriptive Title: Snell's Law

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (4)
    and Ratings: Hugh A. Williamson, Professor, Physics (3)

Origin of the Program: Huntington I Program Library

Program Description:

Educational Description: SNELL is designed to demonstrate Snell's Law,
i.e., $N1*SIN(01)=NZ*SIN(02)$, by providing plots which show the relation-
ships between user-input values on N1, N2, and 01. This program is
appropriate for college students enrolled in lower division physics
courses.

Technical Description: Program SNELL is written in Digital Equipment
Corporations's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharin' 'Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

Th program is approximately 225 statements in length and requires a 6K
user core area.

The program uses the following special system functions: CHR$ (for manipu-
lation of ASCII character codes) and CVT$$ (to handle upper and lower case
inputs).

Recommended Usage Procedure:

This program should be used as a supplement to laboratory demonstration of
Snell's Law. Prior knowledge of this subject is necessary before using
this program. Three sessions of five minutes should be planned on the
terminal to use this program.

How to Access the Program: LIB SNELL

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: SPACE

Descriptive Title: Effects of Velocity on Orbital Motion

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (3)
    and Ratings: Hugh A. Williamson, Professor, Physics (1)

Origin of the Program: Huntington I Program Library

Program Description:

Educational Description: This program is designed to determine the effects
of adding a velocity increment to an orbiting body initially in an elliptic
orbit. Velocity increments can only be added at the apogee or perigee of
the initial orbit and only in a direction tangent to the initial orbit.

Technical Description: Program SPACE is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm line
printer.

The program is approximately 309 statements in length and requires a 7.5K
user core area.

The program uses the following special system functions: CHR$ (for manipu-
lation of ASCII character codes) and CVT$$ (to handle upper and lower case
inputs).

Recommended Usage Procedure:

This program should be used as an adjunct to classroom discussion dealing
with orbited bodies. Students should have a preliminary knowledge of the
subject and plan on three terminal sessions to make adequate use of this
program.

How to Access the Program: LIB SPACE

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: STAT

Descriptive Title: Prints a Table of Experimental Data with Error
                     Values, Percentage Errors, and Averages

Applicable Fields: Statistics in Business, Education, Math

Faculty Evaluator   D. Stan Mattoon, Lecturer, Accounting and Quantitative
    and Rating: Methods (3)

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

Educational Description: Program STAT prints a choice of either 1) a
bar graph distribution; 2) a ranking by percent error; 3) a ranking by
experimental value; or 4) all three. The program is appropriate for
use by college students taking introductory level courses in statistics,
either in business, education, or mathematics. The program demonstrates
how the different methods of ranking compare. No particular statistical
background is required to use this program.

Technical Description: Program STAT is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

The program is approximately 400 statements in length and requires an 8K
user core area. There are no large data files associated with this program.

Recommended Usage Procedure:

The program can best be used in a beginning statistics course to introduce
students to the computer. Approximately one-half hour outside the class-
room is required.

How to Access the Program: LIB STAT

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: STAT1

Descriptive Title: A Program to Calculate the Comparative Mean, Variance,
                    Standard Error, and t-ratio

Applicable Fields: Business, Math, Psychology, Sociology

Faculty Evaluator   Marilyn Meyers, Lecturer, Accounting & Quantitative
    and Rating: Methods (3) *

Origin of the Program: Digital Equipment Computer Users Society (DECUS)

Program Description:

    Educational Description: Program STAT1 gives measures of dispersion
and also does a comparison of groups. The program is appropriate for
first or second semester college level courses in statistics. It enables
students to apply learned concepts without manual data manipulation.
Students should have some background in using statistical means and
measures of dispersion before using the program.

    Technical Description: Program STAT1 is written in Digital Equipment
Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
Version 6A operating system. The computer system has a 64K word memory
main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
line printer.

    The program is approximately 232 statements in length and requires a 6K
user core area. There are no large data files associated with this program.

Recommended Usage Procedure:

    The program can be assigned as an optional supplement to other homework
assignments. Depending on how the instructor requests the students to
use the program, a lot of time would have to be spent gathering data.
If the instructor provides test data, use of the program would only require
about an hour.

    Students probably will not understand the use of the t-ratio unless time
is spent in the classroom covering that particular topic beforehand.
There may also be some difficulty in understanding the mean difference,
the variance of difference, and the standard error of difference. These
topics should be discussed before any assignments are made to run the program.

How to Access the Program: LIB STAT1

*Mrs. Meyers is currently a Programmer in the Center for Information Processing

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: TAG

Descriptive Title: Population Survey Based on Tagging

Applicable Field: Biology

Faculty Evaluator   David F. Grubbs, Assistant Professor, Biology
    and Ratings: (2)

Origin of the Program: Huntington I Program Library

Program Description:

   Educational Description: TAG is designed as a survey of a bass popula-
   tion in a simulated farm pond using tagging and recovery techniques to
   estimate population size. This program is appropriate for students in
   lower division biology which deals with population growth and observation
   techniques.

   Technical Description: Program TAG is written in Digital Equipment
   Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
   computer system under the RSTS'E (Resource-Sharing, Time-Sharing/Extended)
   Version 6A operating system. The computer system has a 64K word memory
   main frame with one RP04 disk, one TU09 tape drive, and one 300 lpm
   line printer.

   The program is approximately 300 statements in length and requires an 8K
   user core area.

   The program uses the following special system functions: CHR$$ (for
   manipulation of ASCII character codes) and CVT$$ (to handle upper and lower
   case inputs).

Recommended Usage Procedure:

   This program should be used as a demonstration of a population estimating
   technique. Students should plan on spending three half-hour sessions
   using this program.

How to Access the Program: LIB TAG

CALIFORNIA STATE UNIVERSITY, FRESNO
CENTER FOR INFORMATION PROCESSING

Program Name: WAVES

Descriptive Title: Sin Wave Analysis

Applicable Field: Physics

Faculty Evaluators   Donald E. Holmes, Associate Professor, Physics (3)
    and Ratings: Hugh A. Williamson, Professor, Physics (3)

Origin of the Program: Huntington I Program Library

Program Description:

> Educational Description: This program is appropriate for college
> students enrolled in low division physics courses studying the effects
> of changing wavelength, amplitude, and phase on two sin waves and on
> their sum or super-position.
>
> Technical Description: Program WAVES is written in Digital Equipment
> Corporation's (DEC) BASIC PLUS language and runs on a DEC PDP 11/45
> computer system under the RSTS/E (Resource-Sharing, Time-Sharing/Extended)
> Version 6A operating system. The computer system has a 64K word memory
> main frame with one RP04 disk, one TU09 tape drive, and one 300 1pm
> line printer.
>
> The program is approximately 179 statements in length and requires a 5K
> user core area.
>
> The program uses the following special system functions: CHR$$ (for
> manipulation of ASCII character codes) and CVT$$ (to handle upper and
> lower case inputs).

Recommended Usage Procedure:

> This program should be used as a supplement to laboratory experiments
> dealing with sinwaves and their characteristics. Students should plan on
> three fiftten-minute sessions using this program.

How to Access the Program: LIB WAVES

INDEX OF PROGRAMS BY DISCIPLINE

Index of Programs by Discipline (continued)

INDEX OF PROGRAMS BY LEVEL OF DIFFICULTY

Introductory or Freshman Level Courses

Intermediate, Sophomore or Junior Level Courses

More Advanced Undergraduate Courses

Programs for use Primarily by Instructors

INDEX OF PROGRAMS BY ORIGIN

Unknown

Lawrence Hall of Science - UC Berkeley

APPENDICES

APPENDIX A

LIST OF PROGRAMS EVALUATED BUT NOT DOCUMENTED

The following programs were found to be of some value but were not rated sufficiently high to be fully documented:

Program Name	Evaluations		Major Discipline
	Evaluator	· Rating	
ANNUI2	G. Johnston	2	Finance
ANVAR1	M. Meyers	2	Statistics
ANVAR2	M. Meyers	2	Statistics
ATWT	D. Zellmer	2	Chemistry
	S. Ziegler	2	
AVOGA	D. Zellmer	1	Chemistry
	S. Ziegler	2	
BDAVAL	G. Johnston	2	Finance
BYIELD	G. Johnston	2	Finance
CHISQ	M. Meyers	2	Statistics
DEPRE	D. Anderson	2	Management
	R. Piersol	3	
EMPIR	D. Zellmer	2	Chemistry
	S. Ziegler	2	
EQUIL1	D. Zellmer	2	Chemistry
	S. Ziegler	2	
EQUIL2	D. Zellmer	2	Chemistry
	S. Ziegler	2	
EXSMOO	R. Tellier	2	Operations Res
	M. Elhag	3	
FREQ	S. Mattoon	2	Statistics
GCPM1	R. Tellier	2	Operations Res
	M. Elhag	2	
GEOMEN	M. Meyers	2	Statistics
GIRRPV	G. Johnston	2	Finance

Program Name	Evaluations		Major
	Evaluator	Rating	Discipline
GKASSF	G. Johnston	2	Finance
GRGPLT	S. Mattoon	2	Statistics
GTHOR	G. Johnston	2	Finance
INOUT	R. Tellier	2	Operations Res
	M. Elhag	3	
KINET	D. Zellmer	1	Chemistry
	S. Ziegler	2	
MASSD	D. Zellmer	2	Chemistry
	S. Ziegler	2	
PERCENT	D. Zellmer	2	Chemistry
	S. Ziegler	1	
PHICOE	M. Meyers	2	Statistics
PHPOH	D. Zellmer	2	Chemistry
	S. Ziegler	2	
POLICY	S. Mattoon	2	Simulations
RANDOM	S. Mattoon	2	Statistics
SALMAN	D. Anderson	2	Marketing
	R. Piersol	2	
STAT3	M. Meyers	2	Statistics
STOICH	D. Zellmer	2	Chemistry
	S. Ziegl.	2	
WALDS	S. Mattoon	2	Statistics

These programs can be accessed by typing the word LIB followed by the program name; for example, LIB LEASE.

APPENDIX B

PROGRAMS WHICH HAVE NOT YET BEEN EVALUATED

Finance

ANNUIT
BDAMRT
BNDPRC
BNDYLD
BNKRSV
CAPINV
CASHFL
ECONMY
EQUITY
EXDRSK
FINFLO
GKCOST
GMRGB
GMRVB
GNPSUM
GRISKA
GVOTE
INACNT
LABOR
LEASIN
LENDER
LESSEE
LOAN
MARKOW
MORGAG
ONIONS
RATIO
SAVING
STKINC
STKRTN
STKVAL
TRIJINT

Statistics

CONLM1
LNTRND
LPHELP
LSTAR
LSTEXP
REGCOR
TVALUE

Physics

BFIELD
BFIEL1
CLOUDS
PHOTON
PLANCK
SCATR1
SPCTRA
SPRING
VELEC
VFIELD
VLOCTY

Miscellaneous

BRAIN
BRAIN1
FAST
FIX
EPRUN
GRADER
HELPER
IATA1
INRAN
OUTRAN
ROBOT
ROBOT1
SUNSET
TRCK1
WHEELS

Engineering

ACNODE
ANLAD
ANALOG
BACT2L
BEAMS
BEMDES
COGO
DEBYE
ESTABR
HTXFT
LQVALV
MICRO
MIXSPR
TMCEV
TMFCE'

Mathematics

ALP
BASE
BESSEL
BITEST
CALC
CALC2
CDETER
CIRCLE
CONVRT
CROUT1
CRVLEN
CXARTH
CXEXP
DATPLT
DERIV
DETERM
DEQFO
DE1OR
DE2OR
DQEOF2
EUCLID
FACTOR
FACTRL
FINAL
FLIP
FNCTS
FNTPLT
FRACAD
FRACDV
FRAC,T
GAUSS
GCF
GFFT
GINTLP
GLPSA1
GSIMEQ
HPPLOT
IMPROP
INTGRT
INTRO
INVRSE
LCM
LRGNUM
LTRBLD
LTRPLT
ORTHOG
PFNPLT
PLOT
PLOTIO
POLY
PSFNPL

RATIO
REDUCE
ROMINT
ROOTER
ROOTS
ROTATE
SETS
SFNPLT
SIMEQN
SOLVIT
SPHERE
SQRS
SQRZ
SQUARZ
STOPB
UNCDEN
UNRDCE
EXPLOT

Computer Science

ADDRTS
CSMCOM
CSMCON
CSMHEL
CSMLIS
CSMOLD
CSMP
CSMRUN
CSMSAV
GSSS
RTSBLD
RTSNAM
SADSM
SLIST
S1311R
S14PAT
S1401
TABLE
XREF
XREF1

Games

ACEYDU ·
ADVICE
AMAZIN
AWARI
BAGLES
BIG6
BIORYT
BIRTH
BOMBER.

Games (continued)

BOWL	MONPLY
BOXING	MUGWMP
BUG	MYCROF
BULCOW	NICOMA
BULEYE	NIM
BUNNY	PASCAL
BUZZWD	PATHWY
CAIADD	PICTUR
CAREER	PIZZA
CHANGE	POET
CHEKER	POETRY
CHIEF	POKER
CHOMP	PONG
CRAPS	REVRSE
CUBE	ROCKET
CUKALK	ROCKSP
DATED	ROCKT1
DATING	ROTATE
DEFUSE	ROULET
DIAMND	RUSROU
DIGIT	SALVO
DRINKD	SALVO1
EVEN	SAVEHO
FLPFOP	SEAWAR
FOOTBL	SHRINK
FOTBAL	SLOTS
FURS	SMOG
GEOWAR	SNOOPY
GOLF	SPLAT
FOMOKO	STAR
GUESS	STARS
GUNER1	STOCK
GUNNER	SYNONM
HANG	TARGET
HILO	TENNIS
HIQ	THEORM
HMRABI	TICTAC
HOCKEY	TITLES
HORSES	TOWER
HURKLE	TRAIN
KENO	TRAP
KINEMA	TREK
KING	TVPLOT
KINGDM	UGLY
LEM	WEKDAY
LETTER	WORD
LIFE	WUMPUS
LIFE2	23 MTCH
LITQZ	3DPLOT
MADLIB	
MAGIC	
MATHDI	

Biology

    EVOLU
    GENES
    HARDY
    MEMBR
    MITOCN
    NZYMC
    POP

All of these programs can be accessed by typing LIB followed by
the program name.

APPENDIX C

FACULTY EVALUATORS

David C. Anderson, Professor, Management and Accounting, CSUF

Mostafa Elhag, Professor, Accounting and Quantitative Studies, CSUF

Alfred B. Evans, Associate Professor, Political Science, CSUF

David E. Grubbs, Assistant Professor, Biology, CSUF

J. Dennis Hagopian, Lecturer in Engineering, CSUF

Donald E. Holmes, Associate Professor, Physics, CSUF

Kand ah Jeyapalan, Associate Professor, Engineering, CSUF

Gerald L. Johnston, Assis __nt Professor, Accounting & Quantitative Studies, CSUF

George S. Leavitt, Professor, Psychology, CSUF

D. Stan Mattoon, Lecturer, Accounting and Quantitative Studies, CSUF

Marilyn L. Meyers, Lecturer, Accounting and Quantitative Studies, CSUF*

Edward E. Nelson, Associate Professor, Sociology, CSUF

Terry G. Newell, Associate Professor, Psychology, CSUF

Ratana S. Newsome, Professor of Home Economics, CSUF

Robert J. Piersol, Professor of Management, CSUF

Lanny J. Ryan, Lecturer, Management and Marketing, CSUF

Richard D. Tellier, Associate Professor, Management and Marketing, CSUF

Hugh A. Williamson, Professor, Physics, CSUF

David L. Zellmer, Associate Professor, Chemistry, CSUF

Stanley M. Ziegler, Professor, Chemistry, CSUF

* Mrs. Meyers is currently a Programmer in the Center for Information
Processing, CSUF

APPENDIX D

COURSEWARE PROGRAMMERS

John Bengtson	Marilyn Meyers
Lauren Burchette	David Moor
Bosco Dias	Carol Moore
Gwen Gee	Judy Mosqueda
Ray Gretlein	Deborah Patrick
Craig Hauschildt	Michael Watts
Nguyen Khai	James Weeks