

- A. GOAL: Strive to maintain continued excellence in research and professional activities. (Continuing)
1. Objective: Provide faculty members who are actively involved in mathematical research with the time, encouragement, and support services required for their research. (Accomplished; Continuing)
 2. Objective: Sponsor an active program of colloquia to provide indepth contact with experts in various research areas. (Accomplished; Continuing)
 3. Objective: Encourage and support research seminars, including interdepartmental seminars, to explore areas of applications of mathematics. (Accomplished; Continuing)
 4. Objective: Support the need for computer equipment to be used by members of the faculty in mathematical research, including maintaining departmental equipment and seeking funds for additional acquisitions as needed. (Accomplished; Continuing)
 5. Objective: Request new faculty positions so that active research faculty can once again be given appropriate time for research activities without slighting the teaching responsibilities of the department. (Continuing)
 6. Objective: Support the goals of the Computing Research Laboratory by recruiting high quality research mathematicians for joint appointments with mathematical sciences and the Computing Research Laboratory. (Continuing)
- B. GOAL: Work to develop and strengthen the graduate program in mathematics. (Continuing)
1. Objective: The graduate committee of the department plans continued extensive regional, national, and international advertising to attract qualified applicants to the graduate program in mathematics. (Accomplished; Continuing)
 2. Objective: Maintain communication with mathematicians at White Sands, and continue to offer sequences of courses at appropriate times to attract these potential students. (Accomplished; Continuing)
 3. Objective: Develop master's programs in pure mathematics, numerical analysis, operations research, applied statistics, mathematical statistics, and mathematics education. The graduate committee will explore the possibility of a master's program with an emphasis in mathematical computer science. (Continuing)

4. Objective: The faculty will support the doctoral programs in mathematics and statistics, even though this will in some cases result in a teaching load above normal responsibility. (Continuing)
 5. Objective: Maintain close ties with the Department of Computer Science, supporting its doctoral program, as well as its master's and undergraduate programs. (Accomplished; Continuing)
 6. Objective: Offer service courses in mathematics in support of graduate programs in science and engineering, and work to attract more of these students into appropriate mathematics courses. (Accomplished; Continuing)
 7. Objective: Provide graduate training in the use of state-of-the-art computer technology in mathematical applications. (Continuing)
 8. Objective: Maintain the program of supervision for graduate assistants teaching lecture sections. (Accomplished; Continuing)
 9. Objective: Hire visiting faculty primarily on the basis of their potential to further the graduate and research programs, and to teach mathematics effectively. (Continuing)
 10. Objective: Request new faculty positions to help develop the graduate programs, particularly those in numerical analysis, statistics, and applied mathematics. (Continuing)
- C. GOAL: Work to strengthen the programs in mathematics and statistics for undergraduate majors and minors. (Continuing)
1. Objective: Work with the deans of arts and sciences, engineering, and education to develop ways of obtaining more complete and timely reports on mathematics majors, including second majors and students planning mathematics as a teaching field, in order to communicate more effectively with students. (Continuing)
 2. Objective: Mail information about New Mexico State University mathematics programs to students and high schools in New Mexico and El Paso. The undergraduate committee will consult with the staff in the Office of Admissions to improve the recruitment efforts of the department. (Continuing)
 3. Objective: The undergraduate committee will study the mathematics curriculum with a view toward responding to the

needs of mathematics majors and minors, as well as attracting additional undergraduate mathematics majors. (Continuing)

4. Objective: Seek support for expanded computer clusters on campus to meet the needs of students majoring in mathematics. (Continuing)
- D. GOAL: Provide the best possible program of service courses. (Continuing)
1. Objective: Reevaluate the undergraduate mathematics curriculum, keeping in mind the needs of the students from all colleges. Increasing emphasis will be placed on enforcement of placement guidelines and better advisement of students who may be marginally prepared for their required courses. (Revised; Continuing)
 2. Objective: Give a mathematics placement examination to new students, a program begun in 1979, and continue to evaluate the effectiveness of this placement program. (Accomplished; Continuing)
 3. Objective: Develop the program of advising and placement for students in lower-division courses, taking advantage of the individually-paced remedial and precalculus courses which are available for students to drop back into during a semester. (Accomplished; Continuing)
 4. Objective: Cooperate in the implementation of the basic skills requirement in mathematics, which is in effect for students entering summer 1980 or later. This will include administering the NMSU Basic Skills Examination in Mathematics at least two times each semester. (Accomplished; Continuing)
 5. Objective: Support the development and use of microcomputer-based learning materials, a project originally sponsored by a National Science Foundation CAUSE grant awarded to members of the faculty in mathematics and computer science. (Revised; Continuing)
 6. Objective: Begin extensive use of microcomputers by students in several undergraduate courses, including courses in finite mathematics and numerical analysis. (Continuing)
 7. Objective: Participate in the planning and design of the new building for the Departments of Mathematical Sciences, Computer Science, and Psychology. The new building, together with Walden Hall, will include space and equipment for both development and implementation of computer-based instruction, computer-equipped classrooms for students of mathematics, space

and equipment for a new Mathematics Learning Center, computer laboratories for faculty and graduate students, general classrooms, office space for faculty and graduate assistants, and departmental administration. (Revised; Continuing)

8. Objective: Request new faculty positions to better serve the mathematical needs of undergraduate students, many of whom, under present conditions, can be accommodated only in large or very large classes. (Continuing)

I. GENERAL DEVELOPMENTS

PERSONNEL CHANGES AND ACTIVITIES

Marcus Cohen was a new associate professor fall semester, with a joint appointment with the Computing Research Laboratory. Dr. Cohen is an applied mathematician with research interests in biology and physics. He will be involved with the computer vision project of the Computing Research Laboratory where his research will include neural network modelling.

Wim Ruitenburt was a visiting assistant professor spring semester; Louisa M. Baart was a visiting instructor during spring semester; and Richard P. Osborne was a visiting professor during spring semester. Roderick Ball was a visiting assistant professor fall semester; and Richard Carmichael was a visiting professor fall semester, on leave from Wake Forest University. Thomas Hall, Carlton Evans, and Sandra Anderson were new college instructors fall semester.

Frances Williams was promoted to professor, effective fall semester. Douglas Kurtz was promoted to associate professor, effective fall semester.

Fred Richman and Joseph Zund were on sabbatical leave during spring semester. Dr. Richman visited the Institute for Defense Analysis at Princeton, doing applied algebra and research in Abelian group theory; and Dr. Zund worked on research in geometry, including classical algebraic geometry and theoretical geodesy, at the University of California at Los Angeles. Robert Wisner was on sabbatical leave both spring and fall semesters. He was doing research in mathematics education.

Roger Hunter was on sabbatical leave during fall semester. He visited the University of Connecticut as a guest lecturer and participated in a workshop on theory of valuated groups at University of Colorado at Colorado Springs. Clayton Sherman was on leave during fall semester. Barry MacKichan and Mark Mandelkern were on leave both fall and spring semesters.

Eighteen research proposals were submitted to State or Federal agencies by 20 faculty members; 6 new and continuing proposals (7 faculty members) were funded in 1984 for a total of \$279,887. Seventeen new and continuing proposals (20 faculty members) were pending in 1984 for a total of \$5,309,274.

In 1984, 17 members of the faculty had 28 research papers published in professional journals or conference proceedings. These included five research papers in algebra, including topics in Abelian group theory and category theory; six research papers in analysis,

including harmonic analysis and functional analysis; four research papers in algebraic topology; three in constructive mathematics, including topics in algebra and analysis; four research papers in applied mathematics and numerical analysis; and six research papers on topics in probability and statistics. Other publications included a technical report from the computer vision project, a technical reference manual for a new scientific word processing system, and an undergraduate college textbook. In addition, 20 faculty members attended one or more professional meetings and presented 10 research papers. Five faculty members presented 14 colloquia at other universities.

During 1984 the department held 17 colloquia, with 5 presented by local faculty and students and 12 by invited speakers. Research seminars included Abelian Groups, Algebra, Harmonic Analysis, Topology, Statistics, Combinatorial Optimization, and Zero Dimensional Groups.

During spring semester, the department employed 19 Crimson Scholars, majoring in mathematics or a related area, as classroom assistants or as computer operators or programmers. In the fall semester, the department employed 22 Crimson Scholars. Undergraduate mathematics major Lance Waller was selected as recipient of the Dr. and Mrs. Jearl Lindley Scholarship in Mathematics for the fall semester. Dag Sewell and Kathy Berger were corecipients of the Deborah Louise Thomas Memorial Award for outstanding work as tutors in the Mathematics Learning Center. Each received \$250 for the fall semester.

In 1984, 2 students received the Ph. D. in mathematics, 6 students received the master of science in mathematics, 7 students received the bachelor of science in mathematics, and 23 students graduated with an undergraduate minor in mathematics.

II. CRITICAL ANALYSIS AND RECOMMENDATIONS

In response to questions from the higher administration with regard to success rates of students in mathematics courses, the department undertook several studies. These included an outside review of the individually paced program, an internal study of the situation based on faculty responses to three questions, and a statistical study of student performance in mathematics classes compared with the students' ACT scores, both mathematics and composite. These three activities are described below.

In the spring semester Dr. Geoffrey Akst of Borough of Manhattan Community College (CUNY), an acknowledged expert in retention, remediation, and individually paced programs, was invited to the campus for an evaluation of the department's program of

individually paced instruction. His report indicated this program is innovative and quite effective in its efforts. He also praised the university as a whole for its commitment to meeting the needs of underprepared students.

During the fall semester a questionnaire was circulated to the faculty members of the department with the questions: Given that we have the students we have, and given that we want and are expected to maintain appropriate standards, (1) What could be done by the university that might help us to bring about a marked improvement in student success rates in mathematics courses? (2) What could be done within the department that might help us to bring about a marked improvement in student success rates in mathematics courses? (3) If you have taught at another university during the past few years, make some informal comparisons relative to student preparation, department policies, or expectations.

The responses to these questions were compiled and arranged according to the following topics: entrance requirements, high school subject matter deficiencies, mandatory placement, prerequisites, repeating courses, advising, placement, attendance, orientation, student/teacher ratio, empathy, tutoring, curriculum revision, financial aid to students, informing the public, influencing the public schools, academic standards, changes in the student population, and general comments and comparisons with other universities. This document, which comprised 27 single-spaced pages, was used as the basis for discussion in faculty meetings, and led to the recommendation for a departmental retreat to be held in spring 1985.

The statistician reporting on student grades looked first at mathematics ACT scores for new mathematics students at New Mexico State University for the years 1970 through 1984. Second, he looked at grade-point averages in specific mathematics courses and related those averages to the ACT scores of the students in those courses. Third, he compared specific grades in specific courses to ACT scores of students in those courses. It was observed that the averages of mathematics ACT scores for students making a grade of C or better in specific mathematics courses are consistently lower in recent years than in the early 1970's. Conjectures that would help explain this phenomenon are that grading standards have been lowered, or teachers in the department are providing better instruction now than 15 years ago, or students are working harder. The full report, "Mathematics Teaching at New Mexico State University," is available in the department.

I. PERSONNEL ACTIVITIES

A. PROFESSIONAL SERVICE

S. E. Anderson

Member, American Association for the Advancement of Science.
Member, Southwestern Association of Naturalists.
Speaker, Native Plant Society of New Mexico, "The Family Asteraceae."
Speaker, Good Samaritan Village, "The Family Asteraceae."

D. M. Arnold

Member, American Mathematical Society.
Member, Mathematical Association of America.
Referee, Pacific Journal of Mathematics.
Referee, Rocky Mountain Journal of Mathematics.
Member, College of Arts and Sciences Premedical Advisory Committee (spring and fall).
Member, Department of Computer Science Promotion and Tenure Committee (spring).
Member, Department of Mathematical Sciences Undergraduate Curriculum Committee, (spring and fall), chairman (fall).
Member, Department of Mathematical Sciences/College of Engineering, Math/Engineering Committee (fall).
Member, College of Arts and Sciences Recruiting Team.
Faculty member at alumni phonathon.
Member, master's examination committee, computer science (one).
Advisor, Ph.D. students (two).
Speaker and organizer, Abelian Groups Seminar (spring).

R. J. Bagby

Member, American Mathematical Society.
Member, Mathematical Association of America.
Referee, Proceedings of the American Mathematical Society.
Referee, American Mathematical Monthly.
Reviewer, Mathematical Reviews.
Member, College of Arts and Sciences Curriculum and Educational Policies Committee (spring and fall).
Member, Department of Mathematical Sciences Advisory Committee (spring and fall).
Member, Department of Mathematical Sciences Undergraduate Curriculum Committee (spring and fall).
Member, Department of Mathematical Sciences Undergraduate Majors Committee (fall).
Chairman, doctoral final oral examination committee, mathematics (one).
Member, doctoral oral examination committee, mathematics (one).
Dean's representative, master's oral examination committee, education (one).
Organizer and speaker, Department of Mathematical Sciences Analysis Seminar (spring and fall).

R. D. Ball

Member, American Mathematical Society.
Member, New Zealand Mathematical Society.

K. K. Berver

Judge, Regional Science and Engineering Fair, spring.

R. D. Carmichael

Colloquium speaker, Department of Mathematics, New Mexico State University, "Abelian theorems for Whittaker transforms."

M. S. Cohen

Member, American Mathematical Society.
Referee, Proposal for National Science Foundation.
Colloquium speaker, Department of Mathematics, University of Kentucky, "Bifurcating Waves in Neural Networks: Spontaneous and Driven Behaviour."
Colloquium speaker, Department of Mathematics, San Francisco State University, "Wave Equations with a Memory Nonlinearity."
Colloquium speaker, Physics Department, California State University, Fullerton, Calif., "The Geometrical Optics of Graded Potential Waves,"
Colloquium speaker, Department of Biology, University of California, Santa Barbara, Calif., "Waves in Neural Networks: Memory and Pattern Recognition."

J. D. DePree

Member, Board of Governors, Pacific Journal (spring and fall).
Referee, Pacific Journal of Mathematics.
Alternate member, University Review Appeals Board.
Member, University Retirement Program Review Board.
Member, College of Arts and Sciences, advisory committee for bachelor of individualized studies.
Member, College of Arts and Sciences Planning Committee (spring and fall).
Member, Department of Chemistry Promotion and Tenure Committee.
Member of the Board of Directors of a major U.S. corporation.

C. L. Evans

Member, Greater El Paso Council of Teachers of Mathematics.
Member, School Science and Mathematics Association.
Reviewer, School Science and Mathematics.

E. D. Gaughan

Secretary-treasurer, Mathematical Association of America, Southwestern Section (spring and fall).
Institutional representative, Mathematical Association of America.
Member, Mathematical Association of America.
Member, National Council of Teachers of Mathematics.
Member, Greater El Paso Council of Teachers of Mathematics.

Advisor, College of Arts and Sciences Advising Center (spring and fall).
Member, University Appeals Board (spring and fall).
Chairman, Department of Mathematical Sciences Undergraduate Curriculum Committee (spring).
Member, Department of Mathematical Sciences/College of Engineering Math/Engineering Committee (spring).
Member, Department of Mathematical Sciences Undergraduate Curriculum Committee (fall).
Member, Department of English Committee for Promotion to Professor (fall).
Chairman, Department of Mathematical Sciences Calculus Book Search Committee (spring).
Advisor, College of Arts and Sciences Advising Center.

J. B. Giever

Member, American Mathematical Society.
Member, Mathematics Association.
Member, Association of Symbolic Logic.
Member, Department of Sociology and Anthropology Promotion and Tenure Committee.
Member, Department of Mathematical Sciences Advisory Committee (fall).
Member, Department of Mathematical Sciences Library-Reading Room Committee (fall).
Member, Department of Mathematical Sciences Committee for Written Comprehensive Examination in Logic (spring and fall).

T. E. Hall

Member, Mathematical Association of America.

R. H. Hunter

Member, American Mathematical Society.
Member, Association for Computing Machinery.
Member, Australian Mathematical Society.
Member, Institute of Electrical and Electronics Engineers.
Member, Mathematical Association of America.
Member, College of Arts and Sciences Graduate Council (spring and fall).
Member, College of Arts and Sciences Computer Advisory Group (fall).
Member, Department of Mathematical Sciences Computer Advisory Committee (spring).
Member, Department of Mathematical Sciences Computer Policy Committee, (fall).
Member, master's examination committee, electrical engineering (one).

N. F. James

Math evaluator, North Central Association at Gadsden High School, Gadsden, N. Mex.

D. G. Johnson

Member, American Mathematical Society.
Member, Mathematical Association of America.
Member, Mathematical Council of Teachers of Mathematics.
Member, Association for Supervision and Curriculum Development.
Member, Department of Mathematical Sciences Advisory Committee (spring and fall).
Member, Department of Mathematical Sciences/College of Engineering, Math/Engineering Committee (spring).
Reviewer, textbook manuscripts for commercial publishers.
Panel member, Faculty Senate Retreat.

W. H. Julian

Member, American Mathematical Society.
Member, The Society of the Sigma Xi.
Member, American Association for the Advancement of Science.
Referee, Bulletin of the London Mathematical Society.
Member, Department of Mathematical Sciences Undergraduate Majors Committee, (spring).
Participant, Seminar in Constructive Mathematics.

J. E. Kist

Member, American Mathematical Society.
Member, Mathematical Association of America.
Fellow, American Association for the Advancement of Science.
Member, Sigma Xi.
Sustaining member, Phi Beta Kappa.
Sponsor, Union of Concerned Scientists.
Reviewer, Mathematical Reviews.
Reviewer, Zentralblatt fur Mathematik.
Member, Department of Mathematical Sciences Graduate Studies Committee (spring and fall).
Chairman, Department of Mathematical Sciences Promotion to Professor Subcommittee (fall).
Member, Department of Mathematical Sciences Committee for Written Comprehensive Examination in Complex Function Theory (spring and summer).
Chairman, master's oral committee, mathematics (three).
Chairman, Department of Mathematical Sciences Promotion to Professor Subcommittee.

R. A. Knoebel

Member, American Mathematical Society.
Member, Association for Computing Machinery.
Member, British Society for the History of Mathematics.
Member, Deutsche mathematiker-Vereinigung.

Member, Institute of Electrical and Electronics Engineers.
Member, London Mathematical Society.
Member, Mathematical Association of America.
Member, Society for Industrial and Applied Mathematics.
Referee, Society for Industrial and Applied Mathematics Journal on
Mathematical Analysis.
Referee, The American Mathematical Monthly.
Member, Department of Mathematical Sciences Computer Policy
Committee, (fall).
Substitute Director, Annual Board Meeting, Rocky Mountain Math.
Consortium.
Member, doctoral committee, civil engineering (two).
Member, doctoral committee, electrical engineering (one).
Member, doctoral comprehensive committee, computer science (one).
Member, master's oral committee, electrical engineering (one).
Member, master's oral committee, computer science (one).
Recipient, Chauvenet Prize, Mathematical Association of America.

S. L. Korsak

Member, National Council of Teachers of Mathematics.

W. M. Krueger

Member, American Mathematical Society.
Reviewer, Zentralblatt fur Mathematik.
Member, College of Arts and Sciences Improvement of Instruction &
Student Relations (spring and fall).
Member, College of Arts and Sciences Computer Planning Committee.
Member, Student Appeals Board (spring and fall).
Member, Department of Mathematical Sciences Undergraduate Majors
Committee (spring and fall).
Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Participant in Mesquite Elementary School's Science Week.
VAX Advisory Group Nudge.
Dean's representative, master's oral examination, computer science,
(two).

A. H. Kruse

Editor, Rocky Mountain Journal of Mathematics (spring and fall).
Member, Board of Directors, Rocky Mountain Journal of Mathematics.
Member, Department of Mathematical Sciences Library-Reading Room
Committee (spring and fall).

D. S. Kurtz

Member, American Mathematical Society.
Reviewer, Mathematical Reviews.
Referee, Indian Journal of Pure and Applied Mathematics.
Referee, National Science Foundation.
Member, Department of Mathematical Sciences Computer Advisory
Committee (spring).

Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Recipient, Wisner-Tompkins award for academic endeavors.
Participant, Harmonic Analysis Seminar.
Member, doctoral final oral examination committee, mathematics
(one).
Dean's representative, master's examination committee, mechanical
engineering (one).

J. O. Loustaunau

Member, American Mathematical Society.
Member, New Mexico Academy of Sciences.
Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Colloquium speaker, Department of Mathematical Sciences, "ACABUG
Project," (spring).
Member, doctoral comprehensive committee, mathematics (one).

M. Mandelkern

Member, American Mathematical Society.
Research associate, University of California, Berkeley, Calif.

R. J. Y. McLeod

Associate fellow, Institute of Mathematics and its Applications.
Member, International Association for Mathematics and Computers in
Simulation.
Referee, research proposal submitted to the Commission for
Scientific and Industrial Research, South Africa.
Referee, Institute of Mathematics and its Applications Journal for
Numerical Analysis.
Reviewer, Mathematical Reviews.
Member, Department of Mathematical Sciences Undergraduate Majors
Committee (spring).
Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Chairman, doctoral committee, mathematics (two).
Advisor, Ph. D. student M. L. Baart of The University of the Orange
Free State, Bloomfountain, South Africa.
Advisor, mechanical engineering students (three).
Advisor, chemical engineering student (one).
Advisor, numerical analysis project in agricultural engineering
(one).
Seminar organizer, Numerical Methods of Inverse Problems, New
Mexico State University (with Dr. Mulholland, Dr. Hills, and
Dr. Wilson).
Speaker, Computer Aided Manufacturing-International Meeting on
Parametric and Analytic Curves, Tucson, Ariz.
Speaker, Digital Equipment Corporation Research Laboratories,
Hudson, Mass.

Colloquium speaker, Department of Mathematics, Queen's University,
Kingston, Ontario, Canada.
Colloquium speaker, Department of Mathematics, Rensselaer
Polytechnic Institute, Troy, N. Y.
Colloquium speaker, Department of Mathematics, University of
Tennessee, Knoxville, Tenn.
Colloquium speaker, Department of Computer Sciences, University of
Waterloo, Waterloo, Ontario, Canada.
Colloquium speaker, Department of Mathematics, University of
Saskatchewan, Saskatoon, Canada.
Speaker, Techtronics Applied Research Laboratories, Beaverton,
Oreg.

R. Mines

Member, American Mathematical Society.
Member, Mathematics Association of America.
Member, Deutsche Mathematiker Vereinigung.
Referee, Houston Journal.
Referee, Rocky Mountain Journal of Mathematics.
Referee, Communications in Algebra.
Member, Faculty Senate (spring and fall).
Chairman, Faculty Senate's Faculty Affairs Committee (fall).
Member, College of Arts and Sciences Faculty Affairs (spring and
fall).
Chairman, Faculty Senate Committee on Committees (spring).
Colloquium Chairman, Department of Mathematical Sciences (spring
and fall).
Colloquium speaker, University of Connecticut.
Colloquium speaker, Wesleyan University.
Colloquium speaker, University of Arizona.

H. T. Nguyen

Member, Institute of Mathematical Statistics.
Member, American Mathematical Society.
Member, Societe Mathematique de France.
Referee, Journal of American Statistical Association.
Referee, Journal of Fuzzy Sets and Systems.
Reviewer, Mathematical Reviews.
Referee, National Science Foundation proposals, Information
Science and Technology division.
Member, Department of Mathematical Sciences Graduate Studies
Committee (spring and fall).
Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Speaker, Joint Statistics Seminar, New Mexico State University.
Chairman, master's oral examination committee, mathematics (one).
Member, doctoral comprehensive committee, animal and range science
(one).
Member, master's examination committee, mathematics (one).
Advisor, master's programs in mathematics.

Organizer, Statistics Working Group, Department of Mathematical Sciences.

Member, Time-Series Working Group, with Experimental Statistics Department.

D. J. Pengelley

Member, American Mathematical Society.

Member, Mathematical Association of America.

Member, Association for Women in Mathematics.

Member, Federation of American Scientists.

Member, Union of Concerned Scientists.

Member, College of Arts and Sciences Ad Hoc Committee on the Library (spring).

Organizer, Topology Seminar (spring and fall).

Lecturer, Topology Seminar (fall).

Writer, reference letters for employment, graduate school fellowship, college admission, teacher education program admission (six students).

K. L. Phillips

Member, American Mathematical Society.

Member, Mathematical Association of America.

Member, Sigma Xi.

Member, Phi Beta Kappa.

Member, Society for Industrial and Applied Mathematics.

Member, Institute for Electronic and Electrical Engineers.

Editor, W. H. Freeman & Co.

Member, Department of Mathematical Sciences Advisory Committee (spring and fall).

Member, Department of Mathematical Sciences Computer Policy Committee (fall).

Member, Department of Mathematical Sciences Library Committee, (spring and fall).

Departmental Representative, Planning Committee for Joint Occupancy Building, (fall).

Member, Computing Research Laboratory Advisory Committee (PIs), (fall and spring).

Member and Chairman, Computing Research Laboratory Equipment Committee, (spring, summer, and fall).

Advisor, Ph. D students, mathematics (two); Master's student, mathematics (one).

Member, doctoral committee, mechanical engineering (one).

Member, doctoral comprehensive oral committee, mathematics (one).

Member, master's committee, mathematics (three).

F. Richman

Member, American Mathematical Society.

Member, Mathematical Association of America.

Member, Society for Industrial and Applied Mathematics.

Referee, Canadian Mathematical Bulletin.

Referee, Proceedings of the American Mathematical Society.
Referee, Houston Journal of Mathematics.
Referee, Israel Journal of Mathematics.
Referee, Journal of Algebra.
Referee, Communications in Algebra.
Referee, American Mathematical Monthly.
Reviewer, Mathematical Reviews.
Member, Department of Mathematical Sciences Graduate Studies
Committee (fall).
Member, Department of Mathematical Sciences Computer Policy
Committee, (fall).
Speaker, colloquium address on constructive algebra, Rutgers
University, New Brunswick, N. J.

G. S. Rogers

Member and NMSU contact, American Statistical Association.
Member, Mathematics Association of America.
Member, Institute of Mathematical Statistics.
Referee, Linear Algebra/Applications.
Advisor, College of Arts and Sciences Advising Center (spring and
fall).
Member, doctoral committee, Counseling and Educational Psychology
(one).
Member, Department of Mathematical Sciences Undergraduate
Curriculum Committee (spring and fall).
Participant in Linear Models seminar.
Participant in Survival Analysis seminar.

C. C. Sherman

Member, American Mathematical Society.
Referee, Communications in Algebra.
Referee, The Journal of Algebra.
Reviewer, National Science Foundation proposals.
Member, Department of Mathematical Sciences Graduate Studies
Committee (spring).
Participant and speaker, Topology Seminar (spring).
Participant and speaker, Topology Seminar, Texas A & M University
(fall).
Chairman, doctoral committee, mathematics (one).
Member, doctoral committee, mathematics (one).
Advisor, six graduate students, mathematics.

C. W. Swartz

Member, American Mathematical Society.
Member, Mathematical Association of America.
Member, Consortium for Mathematics and its Applications.
Representative, NMSU, Rocky Mountain Mathematics Consortium (spring
and fall).
Reviewer, Mathematical Reviews.
Reviewer, Zentralblatt fur Mathematik.

Chairman, Department of Mathematical Sciences Graduate Studies
Committee (spring and fall).
Chairman, Department of Mathematical Sciences Graduate Recruiting
Committee (spring and fall).
Member, Department of Mathematical Sciences Promotion to Professor
Subcommittee (fall).
Member, Department of Mathematical Sciences Tenure and Promotion to
Associate Committee (fall).
Member, Department of Mathematical Sciences Calculus Book Selection
Committee, (spring).
Member, Department of Mathematical Sciences Comprehensive Exam
Committee, (spring and fall).
Member, Department of Mathematical Sciences Real Analysis Written
Comprehensive Exam Committee (fall).
Member, Optimization Comprehensive Written Exam Committee (spring
and fall).
Chairman, Graduate Committee.
Advisor, graduate students (nine).
Member, doctoral comprehensive exam, physics (two).

J. D. Thomas

Chairman, Department of Mathematical Sciences Undergraduate Majors
Committee (spring).
Member, Department of Mathematical Sciences Undergraduate Majors
Committee (fall).
Member, Department of Mathematical Sciences Computer Policy
Committee (fall).
Chairman, doctoral committee, mathematics (one).
Member, doctoral committee, mathematics (four).
Member, doctoral committee, engineering (four).
Advisor, students taking Putnam exam (fall).
Advisor, undergraduate mathematics majors.

I. E. Vance

President, New Mexico Council of Teachers of Mathematics (spring
and fall).
Member, School Science and Mathematics Association, Inc.
Member, National Council of Supervisors of Mathematics.
Member, National Association of Mathematics Teachers.
Member, Mathematical Association of America.
Member, Greater El Paso Council of Teachers of Mathematics.
Member, Department of Mathematical Sciences Undergraduate
Curriculum Committee (fall).

J. G. Vigerust

Member, American Business Women's Association Education Committee.
Member, Music Educators National Conference.
Member, New Mexico Music Educators Association.
Fund raiser for NMSU University Singers Europe '84 Choral Tour.

Chairman, NMSU University Singers Church Performance Committee.
Recipient, master of arts in teaching.

C. L. Walker

Member, American Mathematical Society.
Member, Association for Women in Mathematics.
Member, New Mexico Network for Women in Science.
Member, Pi Mu Epsilon.
Reviewer, Mathematical Reviews.
Ex officio member, Department of Mathematical Sciences Advisory
Committee (spring and fall).
Chairman, Department of Mathematical Sciences Computer Policy
Committee (fall).
Ex officio member, Department of Mathematical Sciences Promotion to
Professor Subcommittee (spring and fall).
Ex officio member, Department of Mathematical Sciences Tenure and
Promotion to Associate Subcommittee (spring and fall).
Member, Department of Computer Science Department Head Search
Committee, (spring).
Chairman, New Mexico Statewide Articulation Committee for
Mathematics, Statistics and Computer Science.

E. A. Walker

Member, Mathematical Association of America.
Member, American Mathematical Society.
Member, American Statistical Association.
Member, Biometric Society.
Member, Sigma Xi.
Member, Phi Kappa Phi.
Member, American Public Health Association.
Reviewer, Mathematical Reviews.
Referee, National Science Foundation Research Proposals.
Referee, Journal of Algebra.
Co-organizer, Conference on Abelian Groups, Oberwolfach, Germany.
Editor, Communications in Algebra.
Evaluator, Department of Mathematics, University of Arizona,
Sabbatical Leave Proposal.
Evaluator, Alexander von Humboldt Foundation, "Senior U.S. Scientist
Award."
Member, Faculty Library Committee (fall).
Member, Search Committee for New Executive Vice President (fall).
Member, University Research Council.
Member, Executive Committee of the University Research Council
Member, University Research Council Subcommittee on Overhead
(fall).
Member, University Research Council Subcommittee on Sabbatical
Leaves (fall).
Member, University Research Council Subcommittee on Research
Computing Resources (spring).

Member, University Research Council Subcommittee on Structure of Research Administration (spring).
Member, Department of Mathematical Sciences Graduate Recruiting Committee (spring and fall).
Member, Department of Mathematical Sciences Computer Policy Committee (fall).
Member, Department of Mathematical Sciences Written Comprehensive Examination in Algebra Committee (spring and fall).
Member, Science Advisory Council of Sam Houston State University.
Member, Executive Committee of the Science Advisory Council of Sam Houston State University.
Member, doctoral final oral examination committee, mathematics (one).
Chairman, master's examination committee, mathematics, (one).
Member, doctoral committee, mathematics (three).
Speaker, University Research Council Retreat, Holy Cross, "Balance of Attention Between Funded and Unfunded Research."
Colloquium speaker, Department of Mathematical Sciences, University of Arizona, Tempe, Ariz., "A Survey of Valuated Groups."

F. D. Williams

Member, American Mathematical Society.
Member, Association of Members of the Institute for Advanced Study.
Advisor, Crimson Scholars, Department of Mathematical Sciences (spring and fall).
Chairman, Department of Mathematical Sciences Tenure and Promotion to Associate Professor Committee (fall).
Chairman, Department of Mathematical Sciences Undergraduate Majors Committee (fall).
Member, Department of Mathematical Sciences Undergraduate Majors Committee (spring).
Member, Department of Mathematical Sciences/College of Engineering, Math/Engineering Committee (fall).
Member, NMSU Greek Affairs Task Force (spring and summer).
Recruiting and Career Day trips to New Mexico high schools.
Faculty sponsor, NMSU Water Polo Team.
Referee, NMSU home swimming meets.
Chapter advisor, Sigma Alpha Epsilon.
Co-organizer and speaker, Algebraic Topology Seminar.
Member, master's committee, electrical engineering (two).

R. J. Wisner

Member, American Mathematical Association of Two-Year Colleges.
Member, Association of Mathematics Teachers of New York State.
Member, Associated Members of the Institute for Advanced Study.
Member, Southwestern Section, Mathematical Association of America.
Member, National Council of Teachers of Mathematics.
Member, Rio Grande Valley Council of Teachers of Mathematics.
Member, Greater El Paso Council of Teachers of Mathematics.

Member, School Science and Mathematics Association.
Chairman, Executive Committee of the Greater El Paso Council of Teachers of Mathematics.
Reporter, "What's Going On," Mathematics Teacher.
President, Greater El Paso Council of Teachers of Mathematics.
Consulting-Editor, Brooks/Cole Publishing Company.
Member, President's Associates, New Mexico State University.
Member, El Paso Symphony Orchestra Association.
Member, Las Cruces Symphony Orchestra Association.
Speaker, Teachers' In-Service Workshop, Ysleta Independent School District, El Paso, Tex., "How Not to Teach Mathematics."
Speaker, Meeting of Public School Teachers and Administrators, Tarrytown, N. Y., "Teaching Problem Solving in the Elementary Grades."
Speaker, Meeting of Public School Teachers and Administrators, Newburgh, N.Y., "Teaching Problem Solving in the Elementary Grades."
Speaker, Meeting of Public School Teachers and Administrators, Albany, N.Y., "Teaching Problem Solving in the Elementary Grades."
Speaker, annual statewide meeting of the Conference for the Advancement of Mathematics Teaching, Austin, Tex., "Rich Problems for Teaching Problem Solving."
Speaker, Meeting of Public School Teachers and Administrators, Worcester, Mass., "Teaching Problem Solving."
Speaker, Meeting of Public School Teachers and Administrators, Burlington, Mass., "Teaching Problem Solving."
Speaker, Meeting of Public School Teachers and Administrators, Newport, R.I., "Teaching Problem Solving."

J. D. Zund

Member, American Physical Society.
Member, Unione Matematica Italiana.
Member, London Mathematical Society.
Member, The Tensor Society.
Member, Seismological Society of America.
Member, International Association of Geodesy.
Referee, American Journal of Physics.
Referee, Annali di Matematica Pura ed Applicata.
Referee, Journal of the Australian Mathematical Society.
Referee, Journal of Mathematical Physics.
Referee, Physical Review Letters.
Reviewer, Mathematical Reviews.
Reviewer, Zentralblatt fur Mathematik.
Reviewer, Addison-Wesley Publishing Company.

B. PROFESSIONAL MEETINGS ATTENDED

D. M. Arnold

International Conference on Abelian Groups and Modules, Udine,
Italy.

R. D. Ball

Princeton Conference on Transformation Groups, Princeton, N.J.
American Mathematical Society Annual Meeting, Louisville, Ky.
Topology Conference in honour of Richard Lashaf.
Midwest Topology Seminar (several).

K. K. Berver

University of the District of Columbia and Addison-Wesley
Publishing Co., Professional Development Workshop,
Washington, D.C.

M. S. Cohen

Summer School in Solvable Models in Mathematical Physics: Rocky
Mountain Mathematics Consortium, Laramie, Wyo.
Conference on Non-equilibrium Statistical Mechanics, Santa Fe,
N. Mex.

E. D. Gaughan

Mathematical Association of America Section Meeting, Tempe, Ariz.
National Council of Teachers of Mathematics Annual Meeting, San
Francisco, Calif.

R. H. Hunter

American Mathematical Society Annual Meeting, Louisville, Ky.
National Computing Conference, Las Vegas, Nev.
Comdex 84, Las Vegas, Nev.

D. G. Johnson

Association for Supervision and Curriculum Development, 39th Annual
Conference, New York, N.Y.
University of the District of Columbia and Addison-Wesley
Publishing Co., Professional Development Workshop, Washington,
D.C.
Quality Education Conference IV, New Mexico State University, Las
Cruces, N. Mex.

R. A. Knoebel

American Mathematical Society, Short Course in Mathematics of
Information Processing, Louisville, Ky.
American Mathematical Society, Annual Meeting, Louisville, Ky.
Mathematical Association of America, Annual Meeting,
Louisville, Ky.

Mathematical Association of America, Minicourse in Applications of
Computer Graphics, Louisville, Ky.
First International Robot Congress, Albuquerque, N. Mex.
Sixth Annual Exposition and Symposium on Ideas in Science and
Electronics, Albuquerque, N. Mex.
Silicon Design - Cambridge '84, Cambridge, England.
Acorn Computer Exhibit, Olympia, West Kensington, London.
AERE Horwell. Vector and Parallel Processors in Computational
Science II, Oxford, England.
Association for Computing Machinery, Fall Meeting, Rio Grande
Chapter, Las Cruces, N. Mex.

R. J. Y. McLeod

Computer Aided Manufacturing International Meeting on Parametric
and Analytic Curves, Tucson, Ariz.
Society for Industrial and Applied Mathematics Summer Meeting,
Seattle, Wash.

R. Mines

International Conference on Abelian Groups and Modules, Udine,
Italy.

H. T. Nguyen

American Control Conference, San Diego, Calif.
Fuzzy Information Processing Conference, Hawaii.
Thirtieth Conference on the Design of Experiments in Army Research
Development and Testing, New Mexico State University, Las
Cruces, N. Mex.

D. J. Pengelley

Joint Mathematics Meetings, American Mathematical Society and
Mathematical Association of America, Eugene, Oreg.

K. L. Phillips

Annual Winter Meeting of the American Mathematical Society
Louisville, Ky.
Berkeley Mathematical Sciences Research Institute Symposium on
Group Representations, Ergodic Theory, Operator Algebras, and
Mathematical Physics, University of California, in honor of
George Mackey, Berkeley, Calif.
American Society of Mechanical Engineers Annual Symposium, on
Robotics and Artificial Intelligence, Albuquerque.
Seventh International Conference on Pattern Recognition, Montreal,
Canada; sponsored jointly by Canadian Image Processing and
Pattern Recognition Society and the International
Association for Pattern Recognition.
Thirtieth Conference on the Design of Experiments in Army Research,
Development and Testing, New Mexico State University,
Las Cruces, N. Mex.

The First Conference on Artificial Intelligence Applications,
Institute for Electronic and Electrical Engineers Computer
Society in cooperation with American Association of Artificial
Intelligence, Denver, Colo.

F. Richman

Varieties of algebra, a conference sponsored by the University of
Chicago, Chicago, Ill.

G. S. Rogers

Mathematics Association of America, Tempe, Ariz.
Thirtieth Conference on the Design of Experiments in Army Research,
Development and Testing, New Mexico State University,
Las Cruces, N. Mex.

C. C. Sherman

Conference on Algebraic K-Theory, Mathematisches
Forschungsinstitut, Oberwolfach, Germany.

C. W. Swartz

University of California at Santa Barbara, Conference on
Generalized Functions and Convergence Structures,
Santa Barbara, Calif.
Society for Industrial and Applied Mathematics Conference on
Numerical Optimization, Boulder, Colo.

C. L. Walker

National Chairmen's Colloquium, American Mathematical Society,
Washington, D.C.
Quality Education Conference IV, New Mexico State University, Las
Cruces, N. Mex.
New Mexico Statewide Articulation Committee, Santa Fe, N. Mex.
Thirtieth Conference on the Design of Experiments in Army Research,
Development and Testing, New Mexico State University,
Las Cruces, N. Mex.

E. A. Walker

Thirtieth Conference on the Design of Experiment in Army Research,
Development and Testing, New Mexico State University, Las
Cruces, N. Mex.
Joint Meeting of American Mathematical Society and Mathematical
Association of America, Louisville, Ky.
American Mathematical Society Short Course on Mathematics of
Information Processing, Louisville, Ky.
International Conference on Abelian Groups and Modules, Udine,
Italy.

R. J. Wisner

Greater El Paso Council of Teachers of Mathematics, Executive
Committee Meeting, El Paso, Tex.

National Council of Teachers of Mathematics, Annual National Meeting, Houston, Tex.
 Greater El Paso Council of Teachers of Mathematics, Executive Committee Planning Meeting, El Paso, Tex.
 Recruiting Meeting for New and Returning Teachers, Greater El Paso Council of Mathematics, El Paso, Tex.
 Presider, Autumn Meeting, Greater El Paso Council of Teachers of Mathematics, El Paso, Tex.
 Leadership Conference, National Council of Teachers of Mathematics, Southwest Region, Austin, Tex.
 American Mathematical Association of Two-Year Colleges, New York, N.Y.
 Greater El Paso Council of Teachers of Mathematics, Executive Committee, El Paso, Tex.
 Association of Mathematics Teachers of New York State, Nevele Country Club, Ellendale, N. Y.
 Presider, Winter Meeting, Greater El Paso Council of Teachers of Mathematics, Anthony, Tex.

II. GRANTS AND PROPOSALS

<u>PRINCIPAL INVESTIGATOR(S) AND AGENCY</u>	<u>FUNDED</u>	<u>PENDING</u>
D. Arnold, R. Hunter, F. Richman, E. Walker; National Science Foundation	\$72,000	\$ 75,000
R. Bagby, D. Kurtz; National Science Foundation		106,417
R. Ball; National Science Foundation		26,506
R. Hunter, E. Walker; with R. A. Knoebel, R. McLeod, H. Nguyen, K. Phillips, F. Richman, G. Rogers; National Science Foundation, Special Projects Program		52,140
R. Hunter, E. Walker; E. Birnbaum; Office of Naval Research		991,326
W. Krueger; with K. Berver, R. Hunter, B. MacKichan, R. Mines, F. Richman, G. Rogers, J. Thomas; Texas Instruments, Inc.		115,557
J. Loustaunau; U. S. Army, TRASANA	36,215	
J. Loustaunau; J. M. Adams; U. S. Army, TRASANA		87,707
R. McLeod; Computer Aided Manufacturing International		11,000

R. McLeod; T. Fay; National Aeronautics and Space Administration		10,000
H. Nguyen; National Science Foundation	14,709	15,933
D. Pengelley; National Science Foundation		112,438
K. Phillips; Battelle Columbus Labs, Army Research Office Scientific Services Program (STAS)	14,963	
K. Phillips; Computing Research Laboratory	62,000	
K. Phillips; Computing Research Laboratory	80,000	
K. Phillips; D. Dearholt, K. Papp; Office of Naval Research		1,244,818
C. Sherman; National Science Foundation		28,415
Y. Wilks; with W. Krueger, K. Phillips, and others; National Science Foundation, Coordinated Experimental Computer Science Research (CER)		2,432,017

III. COLLOQUIUM SPEAKERS

- Joaquin Loustaunau, New Mexico State University, "ACABUG project."
- Richard P. Osborne, Colorado State University, "Groups of order one."
- Jeff Harris, New Mexico State University, "What good is a VAX?"
- Douglas Ravenel, University of Washington, "Some connections between number theory and algebraic topology."
- James A. Davis, Sandia National Laboratories, "Public key crypto systems and factorization."
- Marcus Cohen, University of Kentucky, "Pattern recognition through channeled bifurcation in neural networks."
- Syvert Paul Norsett, University of Trondheim, "Rational approximations to the exponential: recent results."
- Daya-Nand Verma, "A fresh look at the representation theory of symmetric groups."
- Jerrold Griggs, University of South Carolina, "Recent results on systems of subsets."
- Richard D. Carmichael, Wake Forest University, "Abelian theorems for Whittaker transforms."
- I. R. Goodman, Naval Ocean Systems Center, San Diego, "Combination of evidence problem."

- H. S. Bear, University of Arizona, "One dimensional heat functions."
Roderick Ball, New Mexico State University, "Multiaxial actions on manifolds."
Walter R. Bloom, Murdoch University, Australia, "Convolution structures on discrete spaces."
Manfred Dugas, University of Colorado, Colorado Springs, "Torsion theories of abelian groups."
Joseph Zund, New Mexico State University, "Algebraic geometry and spinors."
John Parsons, New Mexico State University, "Maximal operators and Orlicz spaces."

IV. RESEARCH PAPERS PRESENTED

- Arnold, D. M., "Butler Groups and Balanced Extensions," International Conference on Abelian Groups and Modules, Udine, Italy.
Ball, R. D., "k-axial Actions on Homotopy Spheres," Princeton Conference on Transformation Groups, Princeton, N.J.
Knoebel, R. A., "A Tripartite Specification of Data Types," American Mathematical Society Annual Meeting, Louisville, Ky.
Nguyen, H. T., "A Survey of Uncertainty Measures: Structures and Applications," 1984 American Control Conference, San Diego, Calif.
Nguyen, H. T., "On Entropy of Random Sets and Possibility Distributions," Fuzzy Information Processing Conference, Honolulu, Hawaii.
Pengelley, D. J. "A Surprising Splitting of $H_*(BO;Z/2)$ over the Steenrod Algebra," with V. Giambalvo and D. Ravenel, Special Session on Algebraic Topology, Summer Meeting of the American Mathematical Society, Eugene, Ore.
Phillips, K. L., "An Overview of the Mathematics of Computer Vision," 24th Annual Symposium of the New Mexico Section of the American Society of Mechanical Engineers, Albuquerque.
Rogers, G. S. "SAS-FUNCAT-BEWARE," Mathematics Association of America, Tempe, Ariz.
Swartz, C. W., "Schur's Lemma for Operators," Conference on Generalized Functions and Convergence Structures, Santa Barbara, Calif.
Walker, E. A., "Subgroups of Bounded Abelian Groups," International Conference on Abelian Groups and Modules, Udine, Italy.