Part I

1991-92 Annual Report

1 Summary and Critical Analysis of the Year's Operations and Accomplishments

1.1 Special Accomplishments During the Year

This was a very productive year for faculty researchers in mathematical sciences. One faculty member (Joseph Zund) received continuing support from the Air Force for research in mathematical geodesy, two young faculty members (Patrick Morandi and Susana Salamanca-Riba) received research support from the National Science Foundation for work in algebra and Lie group representations, and two young faculty members (David Finston and Mai Gehrke) submitted a successful proposal to the National Security Agency for research support in algebra and logic. Roger Hunter was awarded a Small Business Research Innovations grant Phase II by the National Science Foundation for development of an interactive computational enhancement to the scientific document processing system *Scientific Word* which he produced under the SBIR Phase I grant. The Department continued to build its reputation as a center for mathematical research in algebraic topology and algebraic K-theory, in algebra, and in analysis..

During 1991-92, five faculty members (Marcus Cohen, David Finston, Arthur Knoebel, Douglas Kurtz, David Pengelley) were supported by grants from the National Science Foundation for development of student mathematics projects in calculus, and for advanced calculus and/or high school mathematics courses. Their national dissemination effort is well underway. Their book of 100 calculus projects produced under their first grant was published by the Mathematical Association of America, and was one of the two best sellers in the MAA series. They presented a number of workshops and minicourses around the country explaining their program, and they and other involved members of our faculty are in demand as speakers at conferences. The principal investigators on the Teacher Enhancement grant worked closely with over half of the local high school mathematics teachers throughout 1991-92, including a short course for the month of June 1992. The principal investigators on the new grant for Student Projects in Vector Analysis and Differential Equations, using materials developed the previous year for an integrated sequence with projects at its pedagogical core, taught vector calculus in fall 1991 and differential equations spring 1992.

Two mathematics faculty members (Ray Mines and Frank Williams) were supported by the National Science Foundation in a joint effort with faculty in Computer Science to develop coordinated courses in beginning computer science and finite and

discrete mathematics, and that grant has been renewed for a second year. Another faculty member (Reinhard Laubenbacher) was supported by a National Science Foundation grant for a summer mathematics workshop for outstanding high school students.

The department continued its reactivated Holiday Symposium Series, which brings outstanding mathematicians to campus for a series of in-depth lectures, with a research conference on the use of computers and computer algebra systems in mathematical research in December 1991. The department scheduled weekly colloquia throughout the academic year, including several outstanding invited speakers as well as department faculty members.

In April, at the Annual Mathematics Honors Assembly, 83 undergraduates, including 11 mathematics majors, were honored for accomplishments in mathematics; 4 department scholarships were awarded to mathematics majors. The department again hosted, with assistance from the local chapter of the national mathematics honorary Pi Mu Epsilon, mathematics contests for high school students from five local high schools. The faculty expanded the high school contest program this year by adding additional competition in group problem solving, and increasing the number of participant schools.

The department was successful in hiring two new tenure track faculty members. Ernest Barany, a mathematical physicist, will come to New Mexico State University for Fall 1992. Susan Hermiller, a computational algebraist, accepted a National Science Foundation supported postdoctoral position at Mathematical Sciences Research Institute in Berkeley and will begin at NMSU in Fall 1993.

Faculty members remained active as reviewers, officers, committee and board members of regional and national professional organizations. The department sent six graduate students to present their research at the spring meeting of the Southwest Section of the Mathematical Association of America in Tucson, and participated actively in the Western Regional Meeting of the New Mexico Mathematical Association of Two Year Colleges held in Albuquerque in April 1992.

1.2   Research Program

It is not feasible to try to give a complete and accurate description of research progress in 1991-92 at this point in time, since faculty annual reports will not be collected until fall. So we will address only the changes in research groups resulting from changes in staffing, and mention some information on outside funding for research and curriculum development.

Algebra: Young faculty members in algebra include Patrick Morandi (hired 1989, but starting at NMSU in 1990), David Finston (1990), Mai Gehrke (1990), and Susana Salamanca-Riba (visiting 1990, tenure track 1991). Continuing faculty members in algebra include Ray Mines, Carol Walker, Art Knoebel, Roger Hunter, and Reinhard Laubenbacher. The algebraists, together with several graduate students and other

interested faculty members, held weekly research seminars throughout 1991-92. The four younger algebraists are supported on research grants, as mentioned earlier.

Analysis: One new faculty member, Josefina Alvarez (1990), is an analyst, along with Richard Bagby, Joseph Kist, Douglas Kurtz, Joaquin Loustaunau, Charles Swartz, and Caroline Sweezy. One former analyst, Aristomenis Siskakis, who was on leave 1991-92, resigned to accept an academic position in Greece. The analysts in residence held weekly research seminars in 1991-92 focusing principally on the exciting new field of wavelets.

Topology: Frank Williams, Ross Staffeldt, Gerald Lodder, Gerald Dunn, and David Pengelley work in various areas of algebraic topology and/or K-theory. They met weekly throughout 1991-92, together with graduate students, for a research seminar. Mark Mandelkern works actively in constructive topology and analysis. Frank Williams has carried out investigations jointly with researchers in CRL involving applications of topology to communications.

Logic, **Foundations and Philosophy**: One new algebraist, Mai Gehrke, is also a logician. Arthur Kruse is the senior researcher in logic and foundations. Arthur Knoebel and Ray Mines have research interests in logic and mathematical philosophy. Mark Mandelkern, Ray Mines and Bill Julian continue to contribute in areas of constructive mathematics.

Mathematics Curriculum: Three different National Science Foundation curriculum development or teacher enhancement grants were in effect during 1991-92, with Principal Investigators Marcus Cohen, Ed Gaughan, Arthur Knoebel, Douglas Kurtz, and David Pengelley. One new faculty member, David Finston, has joined the principal investigators on the Teacher Enhancement grant, replacing Ed Gaughan who retired. Ray Mines and Frank Williams held a curriculum development grant for development of discrete mathematics courses and introductory computer science courses, jointly with Computer Science faculty, which has been renewed for a second year.

Applied and Computational Mathematics: Joseph Zund has established an international reputation in mathematical geodesy, and has a research contract with the Air Force supporting his research in this area. William Julian (mathematical astronomy), Marcus Cohen (mathematical physics and biology), and Roger Hunter (scientific document processing) are active applied mathematicians. Takis Sakkalis (computational algebraic geometry, on leave 1991-92) resigned to accept an academic position elsewhere.

Statistics and Probability: Hung Nguyen and Gerald Rogers contributed in statistics and probability. They organized weekly research seminars in 1991-92 with a number of graduate students and faculty from this and other departments. Hung Nguyen has been invited to hold a University Visiting Chair in Fuzzy Mathematics and Statistics in Japan for 1992-93.

1.3 Teaching Program

The nation is facing a shortage of mathematically literate citizens. Given the cultural diversity of the state, New Mexico State University has the unique opportunity to respond to this crisis by searching for and developing successful strategies for attracting more minority students into the study of mathematics and science. The department has held a leadership role in the nationwide program for calculus reform since the awarding in 1988 of a multi-year National Science Foundation grant, and during the last three years has received national attention for this effort. The program emphasizes discovery learning through the inclusion of student research projects in the calculus courses. The department has made the commitment to continue offering courses enhanced with these student project sections in some form, and received funding for another grant to expand this program to higher level courses. In addition, a third grant was awarded to extend these ideas to New Mexico high schools.

The department has been very active in public school education with two faculty members attending monthly curriculum meetings with secondary mathematics teachers, others working actively with secondary mathematics teachers with support of the Teacher Enhancement grant, another co-teaching a summer workshop for outstanding high school students from around the nation, and through sponsorship of mathematics contests for local area high school students with assistance from students in the mathematics honorary Pi Mu Epsilon.

Within the context of the university general education program which went into effect in fall 1991, the mathematics department developed three new courses (Math 110G, Hon275G, Stat210G), made changes in another (Math 112G), and is developing a new version of another (Math 142G) scheduled to begin Spring 1993. These courses were designed from the point of view that mathematics education should not be just for the mathematically talented. Math110G (Mathematics Appreciation) presents a broad view of mathematics, outlining important directions of the discipline. Both Math110G and Stat210G (Statistics for Contemporary Living) strive to impart an understanding and appreciation of what mathematics is and how it affects students' lives. Math112G and Math142G have been (or will be) expanded to encompass the spirit of general education. The department has begun to develop a backlog of students in these courses, and in the long run carrying out the department's mission in general education will inevitably require additional resources.

The graduate program is growing and has attracted both women and minorities. The relatively low graduate student stipends at NMSU continue to make it difficult to attract top American graduate students.

1.4 Professional Service Contributions

Participation in meetings of the Southwest Section of the Mathematical Association of America and the New Mexico Mathematical Association of Two Year Colleges was noted above. Some half dozen faculty members serve on national boards and com-

mittees. Robert Wisner has continued teaching in special programs for public school teachers around the state, and several faculty members are working throughout the year with high school mathematics teachers in Las Cruces. Reinhard Laubenbacher's participation in a summer workshop for talented high school students was noted above.

Many faculty members served as referees or editors for one or more mathematics or statistics journals or publishing companies. Three faculty members (Carol Walker, Josefina Alvarez, and David Pengelley) served on national committees of the American Mathematical Society or the Mathematical Association of America.

There was a member of the department on the Faculty Senate, the President's Teaching Committee, the University Research Council, on two University Appeals Boards, and on most of the college committees in Arts and Sciences. Kitty Berver served on the Ad Hoc Committee on Non-Contract Faculty. All department faculty members participated in committee work within the department.

1.5 External Environment and Analysis

Nationwide, outside funding for mathematical research is extremely limited, and the number of research mathematicians receiving federal funding has continued to drop. In recent years, the department lost four National Science Foundation funded researchers through early retirement. More than a half dozen senior faculty members have retired or resigned in the last four years; others will certainly do so in the next five years. A top priority for the department must be retaining the top faculty members remaining in the department and recruiting new faculty members who are both talented researchers and committed teachers. The department has made an aggressive effort to recruit both women and minorities when seeking new faculty, and has been extraordinarily successful in this effort — four of the six tenure track faculty members hired in 1990, 1991, and 1992 are women, and two are Hispanic. It is anticipated that each of these six will be doing outstanding work for the department.

2 Goals for 1992-93 (including affirmative action plans)

2.1 Conferences and Seminars

Department plans for the future include hosting a national research conference on Lie groups and combinatorics in December 1992. Algebraic topologists have arranged to continue the joint topology seminar with their colleagues at the University of New Mexico–the first meeting was held in Albuquerque in October 1991, and the second in Las Cruces in March 1992. They plan that this seminar will continue to meet semi-annually, alternating between Las Cruces and Albuquerque. The department

will sponsor an active colloquium series, including both outside and local speakers. Research groups in the department will hold regularly scheduled seminars for faculty and graduate students throughout the academic year.

2.2   Undergraduate Teaching and Curriculum

Departmental faculty will continue curriculum development on teaching with project oriented assignments in undergraduate courses and in secondary schools. The high school work is still receiving support from the National Science Foundation. It is perhaps no exaggeration to say that at the present time there is no reasearch-oriented mathematics department in the nation where so many dedicated faculty are putting so much effort into improving calculus classes. Department faculty will continue implementing courses for General Education in mathematics and statistics. Faculty members plan to introduce the use of graphing calculators in College Algebra in spring semester 1993.

2.3   Equipment Needs

Half of the department is housed in Walden Hall, which is inadequately networked for the technological demands of the occupants. The department has made, and will continue to make, strong efforts to obtain the appropriate networking in the near future to avoid a possible crisis situation. The department will continue seeking support to expand capabilities and services of the mathematics undergraduate student computer facility in New Science Hall in support of mathematics and statistics courses.

2.4   Parity Goals

If the department is to retain productive faculty members and to compete successfully for new faculty, it is essential that NMSU salaries be brought up to the average of comparable institutions. Simply offering higher starting salaries is not a complete solution. Several of the more productive faculty members have been recruited away from NMSU recently, and this will continue if the salaries of people already here are not raised into a competitive range. In a successful recruiting effort, the department's professional reputation is at least as important as the salaries that are offered, and it becomes increasingly difficult to recruit good new faculty as productive faculty members leave the university. The college cannot afford to remain complacent about the strength of the Department of Mathematical Sciences based upon its past accomplishments. It will take a monetary commitment from the college just to maintain the level of quality that the department has had in the past, let alone to improve.

2.5 Hiring Goals

Since the resignation of Kevin Hestir in 1991, the department has had a significant need for an additional mathematical statistician. With Hung Nguyen taking leave for 1992-93 to fill a visiting chair, the department has been able to hire a young visiting statistician (Tony Wang) for 1992-93. The department will make sincere efforts to hire a tenure track mathematical statistician for fall 1993. It will be in the best interest of the department and the university to restore the two tenure track positions that were lost in the past three years, and to hire outstanding mathematicians in other areas to support research, graduate and undergraduate programs.

Although the number of mathematicians in most minority groups remains quite small nationwide, the number of well qualified mathematicians actively seeking employment has become very large. This is an especially good time to be hiring, but identifying and recruiting top candidates requires an immense effort. During 1991-92, the hiring committee reviewed the files of more than nine hundred applicants for tenure track or visiting positions. As demonstrated by the results of the past three years, with a timely commitment of support from the administration the department can and will proceed successfully with the recruiting and hiring of well qualified women and minority faculty members.

3 Progress Toward Accomplishment of the Five Year Plan of 7/91

3.1 Parity Goals

The budgets for the five year plans of March 1990 and of July 1991 were based on the assumption that in order to retain outstanding faculty members and to compete successfully for new faculty it would be essential to bring salaries up to the average of comparable institutions. This called for a total of $180,000 in the first three years (1990-93), the amount needed to accomplish this according to published salary information.

Progress: **A total of $36,655, was allotted to the department for equity and parity raises for the tenure track faculty for these three years.** Most of this was made available by drastically reducing merit monies in order to provide additional flexibility in assigning raises, with the total available between base, merit, *and equity raises* being only about 3% each year. This flexibility did allow for some internal adjustment to remove some of the inequities brought about by salary compression. The total amount available for raises did not allow for any progress toward reaching national salary norms. We are almost surely significantly further behind than we were.

3.2 Student Salaries

In response to substantial federal increases in minimum salaries, the five year plan requested an increase of $15,000 in the student salary budget in the first two years.

Progress: This account was increased by $1,000 for 1991-92, and there were no increases for 1991-92 or 1992-93. As a result, we are hiring significantly fewer students than in 1989-90. The transfer of developmental courses to Dona Ana Branch enabled us to accomplish this reduction without the major crisis we would have faced otherwise.

3.3 Graduate Assistant Positions

In order to support both the undergraduate teaching program and the graduate program, the five year plan asked for 16 (8.0 FTE) additional Graduate Assistant positions over the five years. The first six to eight of these would relieve pressure on salary savings, from which several graduate assistants are normally hired now. The additional ones would enable a real increase in our graduate program.

Progress: There has been no change in Graduate Assistant allotment, although two temporary positions have been assigned in support of the teaching with student projects in calculus. The department has been able to hire GA's from salary savings for the past few years. This would become a crisis situation if we did not have several tenure track faculty members on leave without pay each year, making salary savings available for graduate assistants. This is a tenuous way to budget a program.

3.4 Faculty Positions

The five year plan asked for a total of 4.0 FTE tenure track faculty positions. The first two were requested for 1991-92 to coincide with the start of the university General Education program, which we believe will have a substantial impact on our department. The others were requested later to respond to anticipated increases in our undergraduate and graduate teaching programs.

Progress: The College deleted 2.0 FTE tenure track positions from the department in the first two years. This was a totally unexpected and discouraging setback. This put the department 4.0 FTE positions behind the goal in the five year plan by 1991-92, and 6.0 FTE positions behind the total recommended in the five year plan.

3.5 Staff Positions

The other requests in the five year plan were for 0.5 FTE Professional Staff in 1992-93, and 0.5 FTE Classified Staff in 1993-94. The department currently has a half-time position in each category. The need for the half-time Computer Specialist to be raised to full-time is especially strong, particularly since the department has managed to upgrade and increase the amount of computer equipment for faculty and graduate

students this past year. These two modest increases in staffing will continue to be part of our annual budget requests.

3.6   Status of Budget Detail for Five Year Plan 1990-95

The following budget detail summarizes the (negative) progress on the March 1990 plan.

The greatest need is for salaries and positions, i.e. increased stipends for continuing employees, and additional positions for tenure track faculty and for graduate assistants ...

1990-91

Equity adjustments. Proposed: $100,000, Actual: $ 3,430
4.0 FTE Graduate Assistants (8). Proposed: $70,000, Actual: $0
Increase in student salary budget (adjustment for increase in minimum wages). Proposed: $5,000, Actual: $1,000
[Loss of tenure track position] Actual: -$35,000

1991-92

Equity adjustments. Proposed: $40,000, Actual: $16,750
2.0 FTE Tenure track positions (to meet needs of University General Education). Proposed: $70,000, Actual: -$35,000
Operating budget increase for new positions. Proposed: $4,000, Actual: $0
Increase in student salary budget (adjustment for increase in minimum wages). Proposed: $10,000, Actual: $0

1992-93

Equity and parity adjustments. Proposed: $40,000, Actual: $16,475
1.0 FTE Tenure track position. Proposed: $35,000, Actual: $0
Operating budget increase for new positions. Proposed: $2,000, Actual: $0
0.5 Computer Specialist. Proposed: $ 20,000, Actual: $0

SUBTOTAL (Progress to date), Proposed: **$396,000,** Actual: **-$32,820**

1993-94

Equity adjustments. Proposed: $40,000
4.0 FTE Graduate Assistants (8). Proposed: $96,000
0.5 Classified Staff position. Proposed: $14,000

1994-95

1.0 FTE Tenure track position. Proposed: $40,000
Operating budget adjustment for new position. Proposed: $2,000

TOTAL FOR FIVE YEARS Proposed: **$588,000**

(The two $35,000 losses are evaluated at entry level, although the two positions lost in 1990 and 1991, were released at the retirement of two senior faculty members.)

Part II
Brief Update of March 1990 and July 1991 Five Year Plans

4 Department Mission Statement

The Department of Mathematical Sciences emphasizes quality teaching at all levels, requires scholarly activity of all its members, and recognizes the complementary role of service.

5 Statement on Strategic Planning Process

This document was developed by the Department Head (Professor Carol Walker). The previous Five Year Plan was developed by the Department Head and Advisory Committee, comprising three members elected by the tenure track faculty (Professor Richard Bagby, Professor Arthur Kruse, Professor Frank Williams) and two members appointed by the Department Head (Professor Gerald Rogers, College Associate Professor Kitty Berver), during June and July 1991. The earlier Five Year Plan Update, submitted in March 1990, was produced primarily by the Department Head. (In order for planning documents to have significant input from departmental faculty, requests need to be scheduled so that the document development time takes place *during the academic year* and requests need to be timed to allow for significant planning and development time.)

6 Goals and Objectives for a Five Year Period

6.1 Mathematics Majors

The department will work to improve visibility of the mathematics major at both the undergraduate and graduate level. It plans to increase contact between faculty and mathematics majors by continuing to advise freshmen mathematics majors. This was prompted partly by new requirements in place for majors which will make early planning more vital. Mathematics majors enrolled in lower division courses are scattered among the large number of service sections that the department offers, and early advising could help mathematics majors to identify with the department. The department will disseminate information to students regarding the shortage of mathematics majors in the job market, and will try to attract more recruiters to campus through an increase in the number of mathematics majors.

6.2 Hiring Goals

The department plans to augment research groups by adding one or more faculty members in statistics and probability, and by adding two or more faculty members in other areas of interest. (This will require recouping loss of faculty positions and adding more.) Other areas of interest include computational mathematics of all kinds, mathematics education, differential geometry, optimization, numerical analysis, discrete mathematics, as well as those not mentioned above in which research groups already exist — including algebra, analysis, topology and logic. In spring 1992, the department hired one faculty member in an area of applied mathematics complementary to the research interests of current faculty members (mathematical physics and areas of differential modeling), and one faculty member in an area of computational algebra.

6.3 Curriculum Development

The department will continue its national leadership role in undergraduate curriculum development. This will include giving workshops on student research projects in undergraduate mathematics courses, secondary mathematics teacher enhancement efforts, and innovative development of introductory discrete mathematics courses.

6.4 Undergraduate Teaching

The department will continue innovative teaching of precalculus courses, including introducing the use of hand held graphing calculators in these (and other) courses. This will allow teachers to increase the time students spend on problem formulation and interpretation, and allow them to stress the visual and intuitive side of mathematics. (The department is anticipating funding of a National Science Foundation grant to provide graphing calculators for classroom use.)

Faculty members will continue the development of courses which fulfill the General Education requirements.

6.5 Outreach

The department faculty will renew efforts to establish and maintain contact with graduates at all levels, gathering information on what they are doing and soliciting suggestions from them.

7 Affirmative Action Efforts

The department will continue to give special attention to women and minority applicants for faculty and staff positions. It will emphasize opportunities for women and

minority undergraduate and graduate students to pursue careers in mathematics.

8 Distinct National and Regional Programs and Internal Centers of Excellence

8.1 Symposia and Seminars

The continuation of the Holiday Symposia has brought national attention to the interest of the department in mathematical research. The state-wide topology seminars also bring attention to research interest and accomplishments. Faculty members in the department also have contacts with a number of Mexican topologists who are interested in interaction with NMSU, and there are possibilities for extending this seminar to international activities.

8.2 Calculus Reform

The development of student research projects in the teaching of calculus has brought nationwide focus on our undergraduate teaching program. The department will continue its support for student projects in the undergraduate curriculum, and will look for increased support from the university for this program.

9 Review of Existing Academic Programs

The department recently made significant changes in the program for undergraduate mathematics majors, which appear in the 1991-92 Undergraduate Catalog for the first time. An ad hoc committee on linear algebra considered the two courses Math 280 and 480 during spring 1991 and selected new textbooks for both encouraging the use of computers by students in the courses. The department will continue to review its programs of courses for majors, both undergraduate and graduate, and its various service courses, and modify them as needed.

The curriculum committee has developed guidelines for departmental syllabi, to include goals and objective as well as content, and will continue to oversee increased coordination of courses.

10 New Academic Programs

The department will modify the new general education courses in mathematics and statistics as experience suggests. It will plan for a revised program in discrete mathematics following course development supported by the grant with computer science. Algebraists in the department plan to develop new applied algebra courses at the

junior and senior levels. The department will pursue development of programs in mathematics education with the cooperation of College of Education. Mathematics faculty are involved in discussions of a possible new interdisciplinary doctoral program in cognitive science.

11   Research Programs

Most of the members of the research faculty identify with a research group, and these groups meet together in regularly scheduled seminars for presentations and discussions. Researchers strive to publish in major journals both singly and in collaboration with colleagues. Some of the seminars include faculty members outside the department as well. The wavelets seminars in 1991-92 led to a joint colloquium between mathematics and engineering. The department will continue to encourage interdisciplinary research. Frank Williams has worked jointly with faculty in CRL on a research project involving applications of topology. That research involved military applications and a possible Los Alamos tie-in. Elbert Walker worked with researchers in CRL on applications of statistics to research in natural language. There are other collaborations in progress as well.

12   Service Area Needs

The faculty expanded the high school contest program by adding additional competition in group problem solving, and increasing the number of participant schools. Faculty members will continue to work closely with local high school teachers through the National Science Foundation Teacher Enhancement grant, and will expand these programs to other high schools in the area.

13   Budget Detail for Five Year Plan for 1992-97

13.1   Parity Goals

The greatest need is for salaries and positions,i.e. increased stipends for continuing employees, and additional positions for tenure track faculty, graduate assistants, and support staff. The department has had to hire tenure track faculty members at higher salaries than continuing employees. Some of the best people have left in the past several years, and the current situation will accelerate the exodus. This not only erodes the quality of the department, but it also makes it very difficult to attract outstanding new faculty. Thus the department's first priority is equity adjustments to bring the entire faculty up to a competitive salary level.

13.2 Faculty Positions

Another very high priority is an increase in tenure track positions. The loss of two such positions in the past two years has left the department weak at the very time new demands need to be met, such as General Education courses, and the very valuable but time consuming efforts in curriculum development. The latter have been well supported by the National Science Foundation, but the University made commitments for support of this program as well which need to be met out of department resources. The calculus development grants will end during the coming academic year, and the University must continue to support the high level of teaching activity. An increase in Graduate Assistantships is needed for many of the same reasons as well as to support the graduate program.

13.3 Five Year Budget Plan

1992-93

Equity adjustments $ 90,000

2.0 FTE Tenure track positions $70,000

Operating budget adjustment for new positions $4,000

2.0 FTE Graduate Assistants (4) $38,000

0.5 Computer Specialist $20,000

Increase in student salary budget $5,000

Upgrade networking in Walden Hall, start up costs $50,000

1993-94

Equity adjustments $50,000

2.0 FTE Tenure track positions $75,000

Operating budget adjustment for new positions $4,000

2.0 FTE Graduate Assistants (4) $38,000

0.5 Classified Staff position $8,000

Upgrade of computer equipment, start up costs $20,000

1994-95

Equity adjustments $55,000

2.0 FTE Tenure track positions $80,000

Operating budget adjustment for new positions $5,000

2.0 FTE Graduate Assistants (4) $50,000

Upgrade of computer equipment, start up costs $20,000

1995-96

Equity adjustments $50,000
2.0 FTE Graduate Assistants (4) $50,000
Upgrade of computer equipment $25,000

1996-97
1.0 FTE Tenure track position $40,000
Operating budget adjustment for new position $3,000
Upgrade of Computer Equipment, start up costs $25,000

TOTAL FOR FIVE YEARS $875,000