



ADVANCE: Institutional Transformation

Annual Report
January 1, 2005 – December 31, 2005

Tracy M. Sterling, PI and Program Director (starting 5/15/05)

Lisa M. Frehill, PI and Program Director (ending 5/15/05)

Waded Cruzado-Salas, Co-PI

LeRoy Daugherty, Co-PI

William Flores, Co-PI (starting 8/1/05)

Josephine De Leon, Co-PI (ending 8/1/05)

Rudi Schoenmackers, Co-PI

Pamela Hunt, Associate Director (promotion 6/1/05)

Cecily Jeser-Cannavale, Research Analyst

Rebecca Zaldo, Records Specialist (ending 12/18/05)

Lauren Ketcham, Graduate Assistant (ending 5/15/05)

Abby Javurek-Hurig, Graduate Assistant (starting 5/15/05)

National Science Foundation Grant #SBE 0123690



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I. PARTICIPANTS

Program Personnel

Lisa M. Frehill, Principal Investigator and Program Director through May 15, 2005, Associate Professor, Department of Sociology and Anthropology

The principal Investigator (PI) is responsible for all aspects of ADVANCE. The PI conducts institutional self-study. The PI also serves as chair of the Committee on the Status of Women in STEM. As Program Director (PD), the PI/PD oversees all program activity, participates in and supports programs of all ADVANCE committees, and supervises associate director. The associate director supervises the research analyst and the administrative assistant. Frehill stepped down as PI/PD in May to begin a position as Program Director at the University of California, Irvine Advance Program.

Tracy Sterling, PI/PD (as of 5/15/05), Professor, Department of Entomology, Plant Pathology and Weed Science

The principal Investigator (PI) is responsible for all aspects of ADVANCE. The PI conducts institutional self-study. The PI also serves as chair of the Committee on the Status of Women in STEM. As Program Director (PD), the PI/PD oversees all program activity, participates in and supports programs of all ADVANCE committees, and supervises Associate Director. The Associate Director supervises the Research Analyst and the Administrative Assistant. Sterling stepped in as PI/PD on May 15, 2005 when Frehill began a position as Program Director at the University of California, Irvine Advance Program.

Pamela Hunt, Associate Project Director (promoted from Program Coordinator 6/1/05)

Associate Director handles the daily oversight and management of the ADVANCE Program, including budget oversight, staff supervision, and implementation of program activities by working with faculty, the PI/PD, and university administrators. Working with the Administrative Assistant, she facilitates the work of the Committee on the Status of Women in STEM and its subcommittees by: providing logistical support; organizing workshops for faculty and students; coordinating with other relevant on-going programs on campus; facilitating communication among faculty, staff, and administrators; maintaining website; producing program brochure/flyers; monitoring budget; writing interim and annual reports. The Associate Director supervises the Research Analyst and the Administrative Assistant.

Cecily Jesser-Cannavale, Research Analyst

Responsible for on-going internal data collection and analysis, including workshop evaluation and reporting and the required NSF indicators. Also responsible for dissemination of program results at appropriate conferences and in publications, as specified in grant proposal. The Research Analyst supervises the graduate assistant and reports to the PI although her work is managed by the Associate Director in the PI's absence. Works with the PI on the Advance Supplemental grant to develop indicators of programmatic success.

Lauren Ketcham (until 5/15/05) and Abby Javurek-Humig (starting 5/15/05), Graduate Assistant

Assist with on-going internal data collection and analysis, including workshop evaluation and reporting. Assist with production of publications to disseminate results.



Rebecca Zaldo, Administrative Assistant (ending 12/18/05)

Provides programmatic support to the Program Coordinator including: meeting facilitation, financial records processing, and financial records database maintenance.

Dr. Waded Cruzado-Salas, Co-PI, Dean, College of Arts and Sciences

Administration of program. Serves on the Committee on the Status of Women in STEM.

Dr. LeRoy Daugherty, Co-PI, Associate Dean, College of Agriculture and Director, Agricultural Experiment Station

Administration of program. Serves on the Committee on the Status of Women in STEM, the Recruitment Subcommittee and the ADVANCING Leaders Committee.

Dr. Josephine De Leon, Co-PI, Associate Provost for Academic Affairs (ending 8/1/05)

Administration of program. Served on the Committee on the Status of Women in STEM, develops department head training program.

Dr. William Flores, Executive Vice President (starting November 2005) and Provost

Administration of program. Serves on the Committee on the Status of Women in STEM; develops institutionalization of program.

Dr. Rudi Schoenmackers, Associate Dean, Engineering Research Center

Administration of program. Serves on the Committee on the Status of Women in STEM and the Committee on Research.

Committee Members

The PI/Program Director and Associate Director are ex officio members of all ADVANCE Committees.

Committee of the Status of Women in STEM

Each Committee member attends meetings of the committee and serves on one of the five subcommittees. This committee is chaired by the PI/Program Director.

- Laurie Churchill, Program Coordinator, New Mexico Alliance for Graduate Education and the Professoriate (NM-AGEP)
- Sonya Cooper, Associate Professor, Engineering Technology
- Champa Gopalan, Professor, Agronomy and Horticulture
- Roger Hartley, Department Head (through 7/1/04), Computer Science
- Patricia Hynes, Project Director, NM Space Grant
- Ricardo Jacquez, Professor, Civil and Geological Engineering and Program Director, New Mexico Alliance for Minority Participation
- Cecily Jeser-Cannavale, Research Analyst, ADVANCE
- Steven Loring, Administrative Analyst, Agricultural Experiment Station
- Jill Schroeder, Professor, Entomology, Plant Pathology and Weed Science
- Ann Vail, Department Head, Family and Consumer Sciences (until 8/1/05)
- Mark Wise, Department Head, Animal and Range Science



Subcommittees

Recruitment

- Chair, Roger Hartley, Professor, Computer Science
- Josefina Alvarez, Professor, Mathematical Sciences
- LeRoy Daugherty, Associate Dean, College of Agriculture and Home Economics and Director, Agricultural Experiment Station
- Jill Schroeder, Professor, Entomology, Plant Pathology and Weed Science

Research

- Chair, Patricia Hynes, Project Director, NM Space Grant
- Sonya Cooper, Associate Professor, Engineering Technology
- Tiziana Giorgi, Assistant Professor, Mathematical Sciences
- Champa Gopalan, Professor, Agronomy and Horticulture
- Rudi Schoenmackers, Associate Dean of Research, College of Engineering
- Mark Wise, Department Head, Animal and Range Sciences

Distinguished Visiting Professor

- Chair, Ann Vail, Department Head, Family and Consumer Sciences (until 8/1/05)
- Chair, Steven Loring, Administrative Analyst, Agricultural Experiment Station (starting 8/1/05)
- Stuart Munson-McGee, Professor, Chemical Engineering
- Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science
- Nicole Vogt, Assistant Professor, Astronomy

Faculty Development

- Chair, Sonya Cooper, Associate Professor, Engineering Technology (until 8/1/05)
- Chair, April Ulery, Associate Professor, Agronomy and Horticulture (starting 8/1/05)
- Maria Luisa Gonzales, Department Head, Educational Management and Development
- Tara Gray, Director, New Mexico State University Teaching Academy
- Steven Kanim, Associate Professor of Physics
- Nirmala Khandan, Professor of Civil and Geological Engineering

Mentoring Program Expansion

This spring the Mentoring Program expanded to include tenure-track faculty from the social sciences from the following departments:

College of Arts and Sciences

Communication Studies

Criminal Justice

Government

Geography

Sociology and Anthropology



College of Health and Social Services

Nursing
Health Science
Social Work

College of Agriculture and Home Economics

Agricultural Economics
Family and Consumer Sciences

College of Business Administration and Economics

Economics and International Business
Experimental Statistics

Sixteen social sciences faculty asked to participate in the ADVANCE Mentoring Program in the Spring. In the Fall 2005 semester, faculty in the social sciences were fully integrated into the ADVANCE Program.

ADVANCING Leaders Committee

The new leadership development program for faculty at NMSU completed its first full academic year and began its second. Highlights of the spring semester were a luncheon with visiting speaker Virginia Valian and members of the NMSU Administrative Council, and a recognition luncheon with President Martin. Committee members are:

- Cynda Clary, Special Assistant to the Provost, Chair
- Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science and ADVANCE PI/Program Director (co-chair starting 5/15/05)
- Patricia Hynes, Program Director, New Mexico Space Grant Consortium, Co-Chair (starting 12/2/05 in anticipation of Clary's 2006 leave to assume ACE fellowship)
- Bonnie Daily, Associate Professor, Department of Management (until 6/1/05)
- LeRoy Daugherty, Associate Dean, College of Agriculture and Home Economics and Director, Agricultural Experiment Station
- Alison Mann, Assistant Professor, Nursing (starting 8/1/05)
- Michael Morehead, Associate Dean, College of Education
- Diane Prindeville, Director, Women's Studies Program

ADVANCING Leaders Participants (2004-2005)

- Brenda Benefit, Department Head and Professor, Sociology and Anthropology
- Janice Black, Associate Professor, Management
- Carolyn Chavez, Assistant Professor, Management
- Steven Franks, Department Head and Associate Professor, Survey Engineering
- Ricardo Jacquez, Professor, Civil and Geological Engineering and Director, New Mexico Alliance for Minority Participation
- Desh Ranjan, Department Head and Associate Professor, Computer Science
- Allison Mann, Assistant Professor, Nursing
- Gary Roemer, Assistant Professor, Fishery and Wildlife Sciences
- Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science
- Cynthia Pierard, Department Head, Research and Reference Services, NMSU Library
- Connie Stout, Associate Professor, Special Education/Communication Disorders



Mentors for this cohort are:

- Wes Holley, Associate Dean/Associate Director of Academic Programs, College of Agriculture and Home Economics
- Dan Howard, Academic Department Head, Biology
- Marvin Bernstein, Professor, Biology
- Douglas Gillan, Academic Department Head, Psychology
- Sherry Mills, Associate Professor, Accounting and Business Computer Systems
- Anne Gallegos, Regent's Professor, Special Education and Communication Disorders
- George Alexander, Academic Department Head, Engineering Technology
- Kenneth White, Academic Department Head, Civil and Geological Engineering
- Kathy Brook, Associate Dean, Business College
- Cynda Clary, Special Assistant to the Provost
- LeRoy Daugherty, Associate Dean, College of Agriculture and Home Economics and Director, Agricultural Experiment Station

ADVANCING Leaders Participants (2005-2006)

In its second year, Co-PI and Executive Vice Provost/Flores inaugurated the "Provost's Project," in which participants in the ADVANCING Leaders Program, working with the Provost, identify and work to help solve a university-wide area of concern.

- Jeffrey Arterburn, Professor, Chemistry and Biochemistry; Program Director, NM-BRIN
- Ann Bock, Professor, Family and Consumer Sciences
- Teresa Brandon, Professor and Program Director, Health Occupations, Dona Ana Branch Community College
- Martha Desmond, Associate Professor, Fishery and Wildlife Sciences
- Gerald Hampton, Academic Department Head and Professor, Marketing
- David Jauregui, Associate Professor, Civil and Geological Engineering
- Martha Mitchell, Academic Department Head and Associate Professor, Chemical Engineering
- Robert Rhodes, Academic Department Head and Professor, Special Education and Communication Disorders
- Patricia Sandau-Beckler, Associate Professor, Social Work, co-chair Border Research Cluster
- Laura Thompson, Professor, Psychology
- Karin Wiburg, Associate Dean and Director, Educational Research Center

Mentors for this cohort are:

- Michael Hites, Chief Information Officers, Information & Technologies Services
- Liz Ellis, Academic Department Head, Finance
- Peter Gregware, Associate Dean, Arts and Sciences
- Ken White, Academic Department Head, Civil and Geological Engineering
- Rebecca Dukes, Vice President, University Advancement
- Enedina Vazquez, Associate Dean, Graduate School
- Janet Green, Academic Department Head, Hotel, Restaurant & Tourism Management
- LeRoy Daugherty, Associate Dean, College of Agriculture and Home Economics and Director, Agricultural Experiment Station
- Cynda Clary, Special Assistant to the Provost
- Patricia Hynes, Program Director, New Mexico Space Grant Consortium



- Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science and ADVANCE PI/Program Director

Other Specific People Not Listed:

- President Michael Martin met with Co-PIs to strategize institutionalization of ADVANCE programs and initiatives.
- Dr. Donald Birx, Interim Vice Provost for Research, placed the ADVANCE legislative initiative within his legislative requests.
- Christina Chavez Kelley, Senior Assistant to the President, formalized membership of ADVANCE in university-wide diversity committee and met with PI/PD Sterling to further institutionalization of diversity.
- Dr. Michael Hites, Chief Information, Information & Technologies Services, provided access to raw data for annual report, the employee climate survey, and longitudinal data.
- Dr. Walter Zakahi, Academic Department Head, Department of Communications, Chair, NMSU Hispanic Faculty/Staff Caucus sub-committee on Faculty Development-Collaboration on diversity issues and promotion and tenure.
- Dr. Elizabeth Titus, Dean NMSU Library, Chair, President's Commission on the Status of Women. Dean Titus works with the program on various leadership and development efforts.
- Dr. John Mexal, Professor, Agronomy and Horticulture, hosted The ADVANCE Distinguished Visiting Professors/Lowenstein Lecture in the spring. Lecture Panelists were: Dr. Jennifer Ryder Fox, Head, Horticulture and Crop science Department at California Polytechnic State University at San Obispo, CA; Dr. Anne Wagner, Manager of Environmental and Health Service for MolyCorp, Inc.; Dr. Ellen Peffley, Professor of Horticulture at Texas Tech University; and Dr. Virginia Lohr, Professor of Horticulture at Washington State University. All panelists are graduates of the NMSU Department of Agronomy and Horticulture.
- Dr. Karen Villaverde, College Assistant Professor, Computer Science, hosted Dr. Lydia E. Kavraki as an ADVANCE Visiting Professor in the fall. Dr. Kavraki, Noah Harding Professor of Computer Science at Rice University.

Participants' Summary

- 100 (37 female, 73 male) STEM faculty and department heads from all of the 19 target STEM departments attended at least one ADVANCE event.
- 94 faculty and department heads from 30 of the 36 non-STEM NMSU departments participated in an ADVANCE event.
- 97 faculty and administrators—mostly from STEM fields, with 14 from the social sciences—participated in the mentoring program (half men, half women).
- 35 department heads from as many academic departments (including 19 STEM departments) attended at least one ADVANCE-sponsored department head training event.
- Deans and/or associate deans from all seven of NMSU's colleges attended at least one ADVANCE event.
- The President, two Vice Presidents, two Vice Provosts, all three members of the Provost's Office, and eleven senior administrators participated in at least one ADVANCE event.



Because the goal of ADVANCE is institutional transformation, involvement of faculty and administrators from across campus is essential in changing the institution and for garnering support for the continuation of ADVANCE programs after the end of the award period. To facilitate this, the program brought Dr. Virginia Valian to campus to conduct an intensive schedule of meetings, workshops and talks involving department heads, recruitment committee chairs, upper administration, the ADVANCING Leaders Program, Women's Studies, graduate students and the wider NMSU community. This program was co-sponsored by the Colleges of Agriculture and Home Economics, Arts and Sciences, Education, Engineering, the Physical Sciences Laboratory and the Library—all of whom contributed substantially to the cost of bringing Dr. Valian to NMSU.

Attending the ADVANCE PI meeting this year were Co-PI Associate Dean LeRoy Daugherty (College of Agriculture and Home Economics and Director of the Agricultural Experiment Station) and incoming Principal Investigator and Program Director Dr. Tracy Sterling, Professor, Weed Science.



II. ACTIVITIES & FINDINGS

Overview

ADVANCE activities are administrated through a Committee on the Status of Women in STEM at NMSU. The PI/Program Director (with Dr. Sterling assuming this role starting 5/15/05), Co-PI's, faculty from each of the three colleges involved in ADVANCE (Agriculture and Home Economics, Arts and Sciences, and Engineering) and program directors from related NMSU programs work on this Committee and its five subcommittees. The five subcommittees manage the various programmatic elements and include several faculty members beyond those who work on the main Committee on the Status of Women in STEM.

The Committee on the Status of Women in STEM (CSW-STEM) engages in outreach activities and is responsible for coordinating the annual research report on the status of women in STEM at NMSU. The report forms the basis for subsequent programming to address gender disparities in STEM at NMSU. An office staff consisting of an Associate Director (promoted from Program Coordinator as of 6/1/05), Records Specialist, Research Analyst and Graduate Assistants provide necessary administrative, data collection and analysis, and logistical support for the CSW-STEM's, five subcommittees' and the ADVANCING Leaders Committee's activities. At the end of 2005 the Records Specialist accepted another job at NMSU; her administrative and clerical duties have been assumed by two seasoned student assistants.

The Recruitment Subcommittee is involved with outreach (meetings with job candidates), research (surveys about search processes, startup, etc.) and training and development (work with departmental search committees) activities. The Faculty Development Subcommittee is involved with educational and training and development activities. The Research Subcommittee meets to administer a program of grants to existing female STEM faculty for research and travel within their disciplines. The Distinguished Visiting Professor Subcommittee administers another research-related activity that involves a strong outreach component and makes women scientists more visible. The ADVANCING Leaders Subcommittee oversees a leadership development program for faculty at NMSU, which included an academic year of monthly luncheons, and a two-day, off-campus retreat. Financial support is obtained from all six NMSU academic colleges and the library for the program. And an ad-hoc Exit Interviews Subcommittee conducts face-to-face and phone interviews to understand why STEM faculty leave NMSU.

Research and Education

The ADVANCE Program at NMSU supports institutional and faculty development research projects, conducted largely by ADVANCE Program personnel (Frehill, Jeser-Cannavale, Ketcham, and Benton-Speyers) and research and travel for female STEM faculty in the 19 target STEM departments.

All reports and data are posted to the ADVANCE program webpage. We routinely bring copies of reports to key administrators (e.g., the President, Provost, Vice Provost for Research, Deans, Director of the Teaching Academy, etc.) to discuss findings and seek assistance in solving problems.



ADVANCE Program Staff Research

- **Space Allocation:** Research Analyst Cecily Jeser Cannavale worked closely with Ron Washburn on his annual space audit. She has interviewed all 25 STEM and SBS (social and behavioral science) department heads conducted brief phone interviews with STEM and SBS faculty members.
 - Jeser-Cannavale: “Gender Equity and Space Allocation: Are Women Science and Engineering Faculty Disadvantaged Relative to Their Male Peers?” Pacific Sociological Association in Portland, Oregon, April 7-10, 2005.
 - Jeser-Cannavale: “Gender Equity and Space Allocation: Are Women Science and Engineering Faculty Disadvantaged Relative to Their Male Peers?” Panel at the NSF ADVANCE PI Meeting in Washington, D.C. May19, 2005.
- **Institutional Data:** We compiled data for the 12 required indicators (except start-up packages) for the 19 STEM and 6 SBS departments as in the past (findings reported in the attached file) and we compiled many of these indicators for the non-STEM departments. In addition, this year we compiled more trend data to make meaningful presentations about the trends in women’s involvement in STEM and academic administration for the three-year period prior to ADVANCE (i.e., 1999-2001) and for the first three years of the ADVANCE Program.
 - **Attrition data** for the entire campus were analyzed and presented to: Roles and Rewards Taskforce (and included in the Taskforce’s second report to the Provost on Promotion and Tenure); the Associate Provost; the Vice Provost for Research.
 - **Toolkit:** Frehill and Jeser-Cannavale produced a toolkit for other ADVANCE institutions to use in collecting, compiling and reporting the data for the 12 required indicators. The toolkit forms the basis for the supplemental funding award (\$60,000) to bring together data analysts from several ADVANCE institutions to craft a uniform approach to the data reporting tasks. A presentation on the toolkit was made at the ADVANCE National Conference, Arlington, VA, May 2005
- **Program Analysis.** We are collecting and analyzing data on participants in our programs to determine the overall effect of the program on individuals.
 - **Career Advancement.** We are creating a cohort data set so that we can determine the career advances of faculty who were active with the ADVANCE Program over the course of the grant.
 - **Mentoring Program.** An analysis of the ADVANCE mentoring program was conducted. Twenty-four interviews with participants were conducted over the summer and 24 interviews with non-participants were conducted in October through December.



Proceedings

- Frehill and Jeser-Cannavale: "Transforming Gendered Organizations: A Mentoring Program Based on Feminist Organizational Theory" (for the Academy of Management conference, August 2005).
- Frehill and Jeser-Cannavale: "Mentoring and Institutional Transformation: Formalized Mentoring of Men and Women STEM Faculty" for the International Conference for Women Engineers and Scientists (ICWES), August 2005.

Forthcoming publications (2006)

- Frehill, Lisa M. "Using the Index of Dissimilarity to Understand the Sex Segregation of Academic Science and Engineering." Forthcoming (2006) in *Journal of Technology Transfer*.
- Frehill, Lisa, Cecily Jeser-Cannavale, and Janet Malley. "Measuring the Status of Women Towards Cross-Institutional Analysis to Understand Institutional Transformation" forthcoming in *Learning from ADVANCE* edited by Abigail Stewart, Danielle Lavaque-Manty and Janet Malley, Ann Arbor, University of Michigan Press.
- Frehill, Lisa M., Abby Javurek-Humig, and Cecily Jeser-Cannavale. "Women in Engineering: Review of the 2005 Literature" forthcoming in SWE Magazine.
- ADVANCE Institutional Transformation Indictors Working Group (Convened by Lisa Frehill). "Using Program Evaluation to Ensure the Success of Your Advance Program."

Publications under preparation are:

- Frehill, Lisa and Cecily Jeser-Cannavale. "Gender Equity and Space Allocation: Are Women Science and Engineering Faculty Disadvantaged Relative to Their Male Peers?"
- Frehill, Lisa. "It's Just Not Fun Coming to Work Anymore: Faculty Exit Interviews."
- Frehill, Lisa M., Cecily Jeser-Cannavale, Lauren Ketcham. "The Impact of a Mentoring Program on Women and Men in Science and Engineering."
- Frehill, Lisa M. "The Impact of NSF-Funded ADVANCE: Institutional Transformation on Engineering Schools" submitted to the Women in Engineering Programs Advocates Network annual conference (potential proceedings paper).
- **Dual Career Couples:** ADVANCE personnel have worked with four couples at NMSU to make accommodations, which has resulted in recruitment/retention of six STEM faculty (including two college track females) and two social and behavioral science faculty (both college track). We are working with Elizabeth Creamer of Virginia Tech on a study of institutional accommodation of dual career couples. An IRB application to the NMSU review board was approved and interviews are in process. Future publications and presentations will be prepared based on these data.



- **Exit Interviews:** NMSU Institutional Review Board approval for this year's interviews was sought (and awarded). Cynda Clary (Special Assistant to the Provost), Sonya Cooper (Associate Professor of Engineering Technology), and Lisa Frehill will conduct interviews. Interviews will be completed over the summer of 2006, with a report by the end of the Fall 2006 semester.
 - Frehill: "Its Just Not Fun Coming to Work Anymore: Faculty Exit Interviews" at the Pacific Sociological Association Annual Meetings in Portland, OR in April 2005.
- **Diversity in engineering:** PI Frehill has continued her work on racial/ethnic and gender diversity in engineering. Several presentations and papers are based upon this work, with several more in preparation. Diversity as it relates to recruitment has been and will continue to be a theme in this research strand.
 - Frehill, Cannavale: Proposal for the Commission on the Status of Women at NMSU Monitoring Trends Subcommittee, "Proposal for an Ombuds"
 - Frehill, Cannavale: "ADVANCING Diversity in the Professoriate." Presented at NM-AGEP workshop, "M.S. to the Ph.D.," in Las Cruces, NM, May 20, 2005.
 - Ketcham: "SWE Literature Review," presented at the joint Women in Engineering Programs and Advocates Network/National Association of Minority Engineering Program Administrators (WEPAN)/National Association of Minority Engineering Programs (NAMEPA) conference in Las Vegas, Nevada in May 2005.
 - Frehill: Organizer and moderator of the Dean's Panel at the joint WEPAN/NAMEPA conference in Las Vegas, NV, April 2005.
 - SWE Literature Review: for the past three years, the ADVANCE Program research group at NMSU has prepared a comprehensive review of the literature on women in engineering for publication in the Society of Women Engineers' annual yearbook. The literature review has become an essential and well-respected resource for engineers, engineering faculty and academic administrators, and for people involved in efforts to increase women's participation in engineering. The 2004 Literature Review of Women in Engineering, appeared in the April-May, 2005 issue of *SWE Magazine*,
 - Frehill: "The NSF-ADVANCE Program and the Recruitment and Retention of Women Engineering Faculty" for the American Society of Engineering Education conference, June 2005.

Institutionalization of ADVANCE

Indeed, the issues about institutional support were paramount to the ADVANCE team throughout 2005. The ADVANCE PI/PD continued to meet regularly with the Vice Provost for Research, who made one of his goals for the year to "seek other sources of funds for excellent programs like ADVANCE." The Vice Provost for Research included ADVANCE as part of the proposed new administrative structure of the Office of the Vice Provost for Research, and gave the ADVANCE Legislative Initiative for faculty diversity the highest priority of all of his Legislative Initiatives.

The ADVANCE co-PIs met several times throughout the spring semester and summer to craft an institutionalization strategy. The co-PIs, PI/PD Frehill, incoming PI/PD Sterling, Vice Provost



for Research, and Chair of the Advancing Leaders committee met in early May with President Martin, who asked that the team prepare materials related to requesting funding from the State of New Mexico as one of the possible Legislative Initiatives for NMSU in the coming year. The ADVANCE team sees this as significant support within the institutional context of NMSU.

Working through the President's Commission on the Status of Women, the PI/PD (Frehill) and Research Analyst crafted a proposal for an ombudsperson that was accepted by the President in December. This position is slated to be filled in 2006. The President also initiated institutional membership in the Association for Women in Science (AWIS) for NMSU.

In September, the Provost convened a Faculty Senate Committee on Promotion and Tenure charged with revising promotion and tenure guidelines, and appointed the PI/PD (Sterling) to co-chair the committee with Donna Alden, past Faculty Senate Chair and past Co-Chair with Frehill of the Roles and Rewards Task Force.

In November, the President announced a major administrative restructuring to consolidate units and build internal collaborative relationships. The Provost was promoted to Executive Vice President and Provost, and the Assistant to the President was promoted to Senior Assistant, and was placed in charge of diversity.

In line with these organizational changes, Institutional Research, Planning and Outcomes Assessment (IRPOA) was placed within Information and Communication Technologies (ICT). The director of IRPOA retired and a search was initiated. In December, the ADVANCE PI/PD (Sterling) was invited to join the search committee for this position. Working with the Vice President for Information and Communication Technologies, access to the raw data was obtained for this annual report and for NMSU's employee climate survey conducted in 2004. The data included in this Annual Report is the first data report produced by any NMSU grant program based on raw personnel data.

The PI/PD (Sterling) served on a Chemistry/Biochemistry search committee, starting in the fall.

In November, the PI/PD (Sterling) started preparing a proposal for the NSF Partnerships for Adaptation, Implementation and Dissemination (PAID) grant. In support of this proposal, the Executive Vice President/Provost wrote a letter committing to eventually pay for the entire ADVANCE Associate Director's salary, as a permanent position.

Almost all of the funding for Valian's visit (including her substantial fee, travel expenses, meals for participants, books, etc.) was provided by institutional sources at NMSU, with the ADVANCE Program providing planning and logistics support. This was a substantial institutional commitment by NMSU, which addresses, in part, the NSF Site Visitor's Report of November, 2004 that questioned the extent to which NMSU's new administration would support the ADVANCE Program.

Related to institutionalization, the PI/PD (Frehill/Sterling) met regularly with the Director of the Teaching Academy, the new Director of Institutional Equity (until 8/1/05), and the new Human Resources Director to discuss ways to collaborate on programming with a plan to move gender and ethnic equity-related programming into these established institutional offices. Meetings with the ADVANCE team at the University of Texas at El Paso were also continued in an effort to work out strategies for a regional "consortia" approach to addressing the needs of dual career



couples. NMSU President Martin has met with the University of Texas at El Paso (UTEP) President, Diana Natalicio, on this topic as well.

Findings

Indicators and Reports

See the attached file for the tables reporting the 12 required indicators. The attached file includes Dr. Laura Kramer's 2005 Evaluator's Report as well.

In addition, all recipients of start-up funds (distributed by the Recruitment Subcommittee), research and travel awards (distributed by the Research Subcommittee), and Faculty Development funds (distributed by the Faculty Development Subcommittee) report their findings from work supported by ADVANCE funds. Project dates vary, but the following findings were reported in 2005 by the recipients of ADVANCE funds awarded January 2005.

Start-Up Awards

A total of \$200,400 of ADVANCE funds were contributed as matching start-up funds or dual career accommodations. The following reports have been received.

PI – Jennifer Curtiss

Title – Assistant Professor

Department – Biology

Type of Project – Start-Up Funds

Title of Project – Research on compound eye of *Drosophila melanogaster*

The matching start-up funds contribution from ADVANCE have enabled Dr. Curtiss to buy a Zeiss Axio Imager Z1 microscope, which will amply meet the microscopy needs of the lab to conduct research concerning a question in Developmental Biology: How the compound eye of the fruit fly *Drosophila melanogaster* becomes specified to be different from other structures such as the antenna or the wing. Studying eye specification requires extensive examination of individual eye precursor cells as they proceed through development, and hence involves a good deal of transmitted light and fluorescence microscopy.

PI – Cynthia Zoski

Title – Associate Professor

Department – Chemistry and Biochemistry

Type of Project – Start-Up Funds

Dr. Zoski was a senior-level hire and it was very important to give her the best start possible. With the support of the College of Arts and Sciences, EPSCoR, and ADVANCE, NMSU was able to attract her despite a salary which was significantly less than that offered by a competing university. She received three years of credit towards her promotion to full professor and tenure, and will be up for tenure review in 2007. She has used the funds from ADVANCE to purchase equipment which is vital to her research at NMSU, in the NMSU NSF EPsCOR initiative in the area of nanosciences.

--PI – Kathryn Hanley

Title – Assistant professor



Department – Biology

Type of Project – Research

Title of Project – Chimeric flaviviruses provide insight into genetic determinants of virus specificity and infectivity for their arthropod vectors

ADVANCE matching start-up funds contributed to the establishment of a research laboratory and a shared molecular genetics facility. In 2005, these funds supported summer salary which led to the successful application for the K22 grant and the preparation of a manuscript on chimeric flavivirus, as well as contributing to the initiation of graduate training for students.

PI – Barbara Lyons

Title – Assistant Professor

Department – Chemistry and Biochemistry

Type of Project – Start-Up

The hiring of Dr. Lyons, the top candidate for a biochemistry position, was facilitated by ADVANCE matching start-up funds which helped the Department of Chemistry and Biochemistry refurbish existing equipment to make it useful for Dr. Lyons's research. ADVANCE start-up funds also allowed Dr. Lyons to hire a technician and allowed her to contribute monetarily to purchasing the Varian 500 MHz Unity Plus NMR spectrometer, and to buy supplies for initially setting up her laboratory.

Research Subcommittee: Research and Travel Minigrants

A total of \$119,757 was awarded to 12 women for research and travel to be conducted in 2005. To date, the following reports have been received from awardees.

PI – Elizabeth Gasparim

Title – Associate Professor

Department – Mathematical Sciences

Type of Project – Research

Title of Project – Collaborative research in algebraic geometry and topology

Gasparim and Christophe Eyrat were able to provide proof of Zariski's multiplicity conjecture, which is a fundamental problem about singularities, in certain cases. As a result, a joint paper entitled "Multiplicity of complex hypersurface singularities, Rouché satellites and Zariski's multiplicity conjecture" was submitted for publication in the Proceedings of the American Mathematical Society. Also, she discovered a new phenomenon in physics, called the Gauge Theory. Gasparim and Brian Hannaford, a research collaborator, are currently writing a paper that describes the new findings. Steklov Institute for Mathematics in Moscow and Max Planck Institute for Mathematics in Bonn were both involved as partners in the project. The papers resulting from this research are crucial to improve Gasparim's chance for a promotion to full professor. Also, the research conducted will be the basis for a grant application to the mathematical sciences division at the National Science Foundation.

PI – Mai Gehrke

Title – Professor



Department – Mathematical Sciences

Type – Research

Type – Interdisciplinary research collaborations in problems of logic and computer science

In the period 2003-2005 Gehrke has received funding through the NSF ADVANCE Institutional Transformation Award at New Mexico State University, amounting to an approximate total of \$40,000 in all. The funding has been made through a number of subawards for various specific purposes, though most of them have been targeted at allowing Gehrke to develop interdisciplinary research collaborations in order to take her work in pure algebra and relate it to various areas of logic and computer science. We believe that this research proposal is in itself a testimonial to the successful effect of this funding through NSF ADVANCE. Gehrke has moved from a researcher in pure algebra to an interdisciplinary researcher working on problems in logic and computer science.

The funding has resulted in 15 papers. The awards have also sponsored work on a book on canonical extension. As a result, H. A. Priestley of the University of Oxford, an accomplished book author, and Gehrke are under contract to write an approximately 800 page book in the Oxford University Press Logic Guides Series, to be completed by December 2006.

In addition, the funding has resulted in Gehrke's attendance at numerous conferences, workshops, and a panel of the AWM on planning a career in mathematics (as panelist). The ability to travel, and to have time to work in the summer is what has allowed Gehrke to build new research collaborations, among others with Y. Venema, J. van Benthem, M. Dunn, J.F. Nilsson, H. Bruun, M. Erne, and A. Pultr.

PI – Kathryn A. Hanley

Title – Assistant Professor

Department – Biology

Type of Project – Research

Title of Project – Characterization of dengue virus type 3 lineages associated with mild and severe disease

The major research activity of the project was the phenotypic characterization of six isolates of dengue type 3 virus that have been shown to be associated with mild or severe disease in Sri Lanka. To do this, Hanley assessed the ability of each of the six viral isolates to infect mosquitoes fed on an artificial bloodmeal containing high-titer virus. She found that the second group of isolates replicated to significantly higher titers and disseminated more efficiently in mosquitoes than the first group. A paper explaining the results is in preparation. The University of North Carolina de Silva lab and the National Institute of Health were involved as partners on the project. The grant allowed Hanley to fund a teaching release, which gave her the opportunity to complete the research. Also, she presented the research at two meetings and one seminar. The research will be the basis for an RO1 grant.

PI – Nancy J. McMillan

Title – Professor

Department – Geological Sciences

Type of Project – Research



Title of Project – Trace element signatures of gem beryls: Tracing geologic processes and terrorist trading

The PI was able to travel to the Army Research Laboratory in Aberdeen, MD, to collect chemical data on specimens of the gemstone beryl. The goal was to determine what chemical parameters could be used to deduce the provenance of a gem specimen. The results were inconclusive, but McMillan was able to develop a chemical database for beryl analysis by three different analytical techniques. Palermo Mines, the Army Research Lab, and the Smithsonian Institution were involved as partners. The PI also consulted with Dr. David Daniel of the New Mexico State University Experimental Statistics Department. One journal publication resulted from the research. Also, two papers were published and presented. This project allowed the PI to explore links with anti-terrorist researchers. Also, she was awarded a grant from the Army Research Laboratory because of the research she conducted, and she will be writing an additional grant to ARL based on the results of this research.

PI – Maria Cristina Mariani

Title – Assistant Professor

Department – Mathematical Sciences

Type of Project – Travel

Title of Project – Numerical solutions to nonlinear problems arising in Finance and Physics

The PI received travel funds that allowed her to visit Columbia University and present her research in four workshops over the course of the trip. This provided networking opportunities with other professors. One interaction resulted in several presentations in international conferences, as well as publications. The American Mathematical Society and the Mathematical Association of America sponsored the conferences Mariani attended. As a result of her travel, the PI had four journal publications and a paper published, entitled, "Truncated Levy walks applied to the study of the behavior of Market Indices." Mariani was also able to develop several computational programs for the analysis of intermittence and scale invariance in the behavior of Major Financial Indices near a Crash. The publications resulting from this travel will help Mariani to be more successful in the tenure process. Also, the research conducted will be the basis for grant proposals to the National Science Foundation and other agencies.

PI – Inna Pivkina

Title – Assistant Professor

Department – Computer Science

Type of Project – Research

Title of Project – Revision programming with cardinality atoms

Pivkina's research focused on the properties of justified revisions semantics of revision programs. Three different approximations of answer sets of unitary Lifschitz-Woo programs were developed and compared. V. Marek and M. Truszczyński from the University of Kentucky participated in the project. Pivkina presented the approximations and their comparison at the 8th International Conference on Logic Programming and Nonmonotonic Reasoning. The results were published in the peer-reviewed Proceedings of the conference. The project gave Pivkina an idea for a possible next publication on developing an even better approximation of answer sets of unitary Lifschitz-Woo



programs. The publication that resulted from this project will contribute to Pivkina's opportunity to become tenured.

PI – Mary Ballyk

Title – Assistant Professor

Department – Mathematical Sciences

Type of Project – Research

Title of Project – Competition in an Unstirred Chemostat

After completing her research, Ballyk gave four presentations, entitled "Enrichment thresholds for growth and predation," "Adventures in Mathematical Ecology," "Enrichment thresholds for growth and predation," and "UBM: A training program for research on the interface of Mathematics and Biology at New Mexico State University." She also attended the workshop "Modeling the Rapid Evolution of Infectious Diseases: Epidemiology and Treatment Strategies" and the International Workshop on Differential Equations and Mathematical Biology. Two journal publications and one paper resulted from completion of her research. Co-authors of the project included C. Connell McCluskey from Wilfrid Laurier University, Gail S.K. Wolkowicz from McMaster University, and Dr. Ernest Barany from New Mexico State University. Ballyk's completed projects will contribute to her tenure review, and she was able to buy release from one course. Ballyk and a colleague will be submitting a proposal for another grant application on the basis of the research conducted.

PI – Erin Silva (Agronomy and Horticulture)

Type of Project – Travel Award

Title of Project – Travel to Ecological Farming Conference in Monterey, CA for Curriculum and Professional Development

The primary purpose for Silva's attendance to the Ecological Farming Conference was to develop the curriculum for her course, Spring Organic Vegetable Production. Low student enrollment necessitated an overhaul of the course curriculum, and Silva addressed this challenge by attending panels and short courses sponsored by the Ecological Farming Association, Organic Farming Research Foundation, and the University of California-Santa Cruz Center for Sustainable Agriculture. At the conference, she learned what other universities are including in their sustainable agriculture curriculum, how they are recruiting students into their program, and how they are obtaining funds and support for their program. She used the ideas that developed from attending this January conference in the applications that she submitted in May 2005 for USDA Organic Research grants.

PI – Irena Swanson

Title – Associate Professor

Department – Mathematical Science

Type of Project – Research Award

Title of Project – Integral Closure of Ideals

Swanson used the course release time provided by her ADVANCE research funds to work on finishing the core parts of a graduate-level textbook on integral closure which she is writing with Craig Huneke, a mathematics professor at the University of Kansas.



Dr. Huneke will work intensively on his sections of the book this summer and the final version of the book is anticipated in December 2005 and has received preliminary approval for publication by Cambridge University Press. The book will provide a much-needed textbook integral closure of ideals, summarizing existing knowledge and providing extensions of the theory to more general contexts, as well as material on the modern computational aspects of the theory. In addition to her work on this textbook, Swanson also took advantage of the time provided by her course release to research adjoints of ideals with Reinhold Huebl of Universitaet Regensburg, Regensburg, Germany and worked with her Ph.D. student Trung Dinh on Artin approximation and primary decompositions.

PI – Caroline Sweezy

Title – Associate Professor

Department – Mathematical Sciences

Type of Project – Research

Title of Project – Weights and parabolic gradients

Sweezy's research focused on how the temperature of a region, such as a metal plate or a room, is changing and how it can be controlled. She also completed work on higher order integrability for gradients of general temperature functions. Sweezy wrote three papers on the research she did. She also jointly wrote a paper with J. Michael Wilson on their results on parabolic gradients for solutions to a homogeneous equation and submitted the paper to the International Journal of Pure and Applied Mathematics. Sweezy gave a talk on the elliptic gradient results, chaired the special session on Advanced Simulation, Modeling and Systems II at the WSEAS International Conference on Dynamical Systems and Control, and gave a talk at the WSEAS Conference on her paper on higher order intelligibility. She also gave three hour length talks on her research at the Department of Mathematical Sciences Applied Analysis seminar. The papers she published will contribute to her consideration for promotion to full professor. As a result of the grant, Sweezy was also given two course releases so she could concentrate on research. She has been invited to contribute a paper to an AMS Conference Proceedings of the Prairie Analysis Seminar, and she has been invited to participate in two conferences in 2006. Sweezy will use the results of her research to submit a proposal to the National Science Foundation for funding to complete the research.

PI – Delia J. Valles-Rosales

Title – Assistant Professor

Department – Industrial Engineering

Type of Project – Research

Title of Project – Human Performance Modeling to Improve the Decision Making Process in Manufacturing Cells

Valles-Rosales worked with her CoPI, Jeanine Cook, Ph.D., to propose a novel method to measure human performance metrics and to understand how environmental factors such as lighting and noise level, ambient temperature, physical body postures required for working, as well as scheduled breaks for stress relieving and eating affected dexterity of operators performing repetitive tasks at a local company. From the resulting analysis, it was found that dexterity degradation fluctuated during the day significantly in most



operators. They were then able to prepare a scheduling plan to monitor dexterity on real time to help management take immediate action to maintain stable levels of performance during the day. This research contributed to Valles-Rosales' opportunity to become tenured. Also, the team was assigned laboratory space with the option to grow in the future. This project was a crucial element to enhance their chances for getting funding during summer time. The University of Texas at El Paso and Johnson Controls, Inc. were involved as partners in the project.

Opportunities for Training and Development

ADVANCE Program Staff

ADVANCE Program Staff attended a number of conferences in the past year. At most of these conferences, papers were presented or sessions organized, often by multiple members of the NMSU ADVANCE team. In addition to opportunities detailed elsewhere, ADVANCE program staff attended:

- April 2005, Women in Engineering Programs and Advocates Network/NAMEPA joint conference in Las Vegas, Nevada.
- NSF-HRDT conference in April 2005.
- Pacific Sociological Association Annual Meetings in Portland, OR in April 2005
- ASEE conference in Portland, Oregon, June 2005
- Academy of Management conference, August 2005
- International Conference for Women Engineers and Scientists (ICWES), August 2005.
- Passion for Leadership/Voice for Change leadership training attended by the Associate Director in Taos, New Mexico, October 2005.
- New Mexico Network for Women in Science and Engineering (NMNWSE), in October 2005.

Other Faculty and Administrators

The ADVANCE Program provided training programs that reached many faculty and administrators from almost every NMSU academic department and a limited number of students (graduate and undergraduate). In addition to ADVANCE events on campus, the ADVANCE Program provides support to the NMSU Teaching Academy and enables STEM faculty, administrators, and students to attend important off-campus workshops and conferences related to gender in the STEM fields.

On Campus Events

The ADVANCE Program features a number of training events associated with mentoring, department head training and ADVANCING Leaders programs. Attendance at these events averages about 26 people.

While the mentoring program focuses predominantly upon faculty in the STEM fields, several participants are from departments outside these target disciplines and several key NMSU administrators outside of STEM participate in this program. A new cohort of social and behavioral sciences participants will be recruited in the coming year and the program will expand to include college-track STEM faculty.



The ADVANCE department head trainings were the only training opportunities for department heads at NMSU this year. Thirty-five department heads from as many academic departments (including 16 STEM departments) attended at least one ADVANCE-sponsored department head training event.

The new ADVANCING Leaders Program also reaches across campus in important ways. Not only are the participants from all six academic colleges plus the NMSU Library, but the invited speakers include important administrators at NMSU, including: Provost William Flores and Vice President Gladys De Necochea (Student Affairs). Associate deans from several colleges were involved as mentors or are on the planning committee for the program including: Kathleen Brooks (College of Business Administration and Economics); LeRoy Daugherty and Wes Holley (College of Agriculture and Home Economics); Peter Gregware (College of Arts and Sciences); Enedina Vasquez (Graduate School); and Michael Morehead (College of Education).

<u>Date</u>	<u>Attendees</u>	<u>Event</u>
1/20/05	31	Briefing dinner, Virginia Valian. Invited attendees: University leadership
1/21/05	20	ADVANCING Leaders Luncheon: Using One's Power to Change One's Institution. Invited speaker: Virginia Valian. Invited attendees: Administrative Council
1/21/05	33	Graduate Student Mentoring Workshop: Making Sure that Academia Includes You. Invited speaker: Virginia Valian. (Co-sponsor: AGEP)
1/21/05	35	Department Head/Recruitment Committee Chair Workshop: Addressing Gender Equity. Invited speaker: Virginia Valian.
1/21/05	15	Debriefing dinner, Virginia Valian. Invited attendees: University leadership
1/21/05	65	Campus-Wide Lecture: Why So Slow? The Advancement of Women. Invited speaker: Virginia Valian. (Co-sponsor: Women's Studies)
1/21/05	12	Women's Studies Steering Committee. Invited facilitator, Virginia Valian.
2/4/05	12	ADVANCING Leaders Luncheon: Conflict Resolution. Facilitator: Dr. Lisa Frehill.
2/19/05	50	Promotion and Tenure Workshop: Provost's Tenure Working Session. (Co-Sponsor: Provost)
3/11/05	12	ADVANCING Leaders Luncheon: Paths to Leadership. Invited speaker: Dr. Ruth Cantrell, Chair, Theatre Department and recipient, Governor's Award for Excellence and Achievement in the Arts



3/15/05	22	Mentoring Workshop: Faculty Job Stresses and How to Cope with Them. Invited speaker: Dr. Dario Silva, Director, Employee Assistance Program
4/4/05	10	Social Sciences Mentoring Program: Mentoring Orientation. (Presentations by Dr. Sonya Cooper, Interim Department Head, Engineering Technology and Dr. April Ulery, Associate Professor, Agronomy and Horticulture.) Inaugural event for new social science faculty mentoring program cohort.
4/8/05 & 5/6/05	14	ADVANCING Leaders Luncheons: Four Roles of Leadership Covey Training. Facilitator: Franklin Covey Trainer, Carter Campbell, Dona Ana Branch Community College Continuing Training.
4/19/05	11	Visiting Professor Program: Agriculture and Home Economics Female Faculty/Students Luncheon with ADVANCE/Lowenstein Lecturers.
4/21/05	21	Visiting Professor Program: ADVANCE/Lowenstein Lecture: 2Y is not Y X or Why Science Needs Women. (Co-Sponsor: Department of Agronomy and Horticulture)
4/22/05	30	Visiting Professor Program: ADVANCE/Lowenstein Lecture: How NMSU Develops Plant and Environmental Scientists. (Co-Sponsor: Department of Agronomy and Horticulture)
4/28/05	21	Department Head Training: Working Across Colleges and Disciplines. Invited speaker: Vice Provost for Research, Donald Birx
4/30/05	19	Mentoring Program: End-of-Academic Year Potluck Picnic. Families and partners invited to informal outdoors event.
5/10/05	22	ADVANCING Leaders Luncheon: Recognition Luncheon. Invited speaker, NMSU President Michael Martin.
8/26/05	33	ADVANCE Program Open House
8/31/05	25	Visiting Professor Program, Dr. Lydia E. Kavradi: "Geometrics and Robotics"
9/1/05	12	Visiting Professor Program, Dr. Lydia E. Kavradi: "How I Became a Computer Scientist"
9/1/05	14	Visiting Professor Program, Dr. Lydia E. Kavradi: "How to Succeed in Graduate School and Research"



9/1/05	12	Visiting Professor Program, Dr. Lydia E. Kavradi: Meeting with CREST Collaborators
9/1/05	63	Visiting Professor Program, Dr. Lydia E. Kavradi: "From Robots to Biomolecules"
9/8/05	58	Mentoring Program: Mentoring Orientation
9/16/05	20	Advancing Leaders: Inaugural Luncheon with Provost Flores and MBTI Review
9/9/05	12	Program presented with Women's Studies: "Gender Equity in Australia," Joanne Sikora
9/17/05	48	Promotion & Tenure: Strategies for Promotion to Full Professor Workshop
10/14-15/05	20	ADVANCING Leaders Retreat, Cloudcroft, NM
10/21/05	20	Mentoring Program: "Navigating Professional Societies" ADVANCE
11/11/05	13	Mentoring Program: Mixer
11/11/05	33	Program presented with AGEP: Grant Proposal Development Workshop
12/2/05	32	ADVANCING Leaders Program: Luncheon with NM Rep. Andy Nuñez

All ADVANCE workshops are evaluated, with a report prepared by the Research Analyst for use by the Faculty Development Subcommittee in planning future workshops.

Customized Training Program, Dona Ana Branch Community College

Covey's 4 Roles of Leadership

- The ADVANCING Leaders Program participants

Covey's 7 Habits of Highly Effective People

- Hong Huang, Assistant Professor, Electrical and Computer Engineering
- Inna Pivkina, Assistant Professor, Computer Science
- Amiya Bhattacharya, Assistant Professor and Associate Department Head
- Desh Ranjan, Department Head, Computer Science (ADVANCING Leaders participant)
- Carolyn Chavez, Assistant Professor, Management (ADVANCING Leaders participant)

The Influential Leader Simulcast

- Tracy Sterling, Professor, Weed Science (ADVANCING Leaders participant)



NMSU Teaching Academy Programs

The NMSU ADVANCE Program supports and promotes events at the NMSU Teaching Academy, which provides a range of professional development activities for all NMSU faculty. The Teaching Academy provides the ADVANCE Program with names of STEM faculty who attend so that we can determine topics of interest to STEM faculty in particular. ADVANCE provided matching funds for the following STEM participants in the summer 2005 Boot Camp for Professors:

- Amiya Bhattacharya, Assistant Professor and Associate Department Head, Computer Science
- Amal Mostafa, College Professor, Mathematical Sciences
- Rossio Kersey, Post-Doctoral Student, Molecular Biology

ADVANCE also provided matching funds for Chris Cramer, Associate Professor of Horticulture, to attend the 21st Annual Conference on Distance Teaching and Learning in August 2005. He reported that attending the conference helped him prepare for offering his first distance education course in the fall of 2005, familiarizing him with technology, terminology and current trends for distance education.

Conferences and Off-Campus Development Opportunities

- May 2005: ADVANCE PI Meeting and Conference, Arlington, VA: NMSU ADVANCE supported attendance by: Associate Dean LeRoy Daugherty (College of Agriculture and Home Economics); PI/Program Director Sterling and Research Analyst Jeser-Cannavale also attended the conference.
- Dario Silva, Director, Employee Assistance Program and Laura Godwin, Assistant Professor, Theatre received training at the Center for Research on Learning and Teaching Theatre Program Summer Institute for training on using theatre to promote multicultural and gender diversity in recruitment and promotion.
- Michele Shuster, College Assistant Professor in Biology attended the American Society of Microbiology Scholarship of Teaching and Learning Summer Workshop in July 2005 as an ASM Scholar-in-Residence, partially supported by an ADVANCE mini-grant.
- Paola Bandini, Assistant Professor of Civil and Geological Engineering, attended the 2005 Teaching/Demonstration Short Course on Pile Design for Educators in June, partially supported by an ADVANCE mini-grant.
- Martha Mitchell, Department Head of Chemical Engineering, attended the Engineering Leadership Institute (WELI) in 2004. At the time of her attendance she was Interim Department head of Chemical Engineering; since then she has been appointed full Department Head. She reports that meeting with 40-plus other women in women in engineering academic leadership reassured her that she was not an anomaly, and that she benefited from sessions on issues that are important for administrators, including department heads. Lynn Kelly of Engineering Technology attended the 2005 WELI.
- Donald Caccamise, Department Head of Fishery and Wildlife, attended the University of Washington National Leadership Workshop for Department Chairs in July 2005, partially supported by an ADVANCE mini-grant.
- Partially supported by ADVANCE mini-grants, the following STEM faculty members attended the NSF regional workshop in Albuquerque New Mexico in November: Amiya Bhattacharya and Inna Pivkina (Computer Science); Elizabeth Gasparim (Mathematical Sciences); Ou Ma (Mechanical Engineering); and Paola Bandini (Civil and Geological Engineering).



Outreach Activities

Miscellaneous Visits and Meetings

Regular meetings with Tara Gray (Director, Teaching Academy), Diana Quintana, Director Human Resources (Promoted in May 2004), Donald Bix (VP Research) and Paul Gayle-Smith, Director of Institutional Equity (the new EEO director, hired in October, 2004, resigned August 2005) (Frehill, Sterling).

Met with Richard Meyers, NMSU's Washington Representative (Frehill).

Met with Assistant Dean of Engineering Patricia Sullivan (Frehill, Sterling, Hunt)

Committee Memberships

The Program Director (Frehill) was involved in several committees:

- President's Commission on the Status of Women
- Monitoring Policies Subcommittee of the President's Commission on the Status of Women
- Gender Equity in Pay Committee
- Employee Climate Survey Committee
- Women's Studies Steering Committee

Frehill also served as a member of the ADVANCE Advisory Board for the University of Texas at El Paso.

The Program Director (Sterling) was involved in several committees:

- President's Commission on the Status of Women
- Faculty Senate
- Provost's Promotion and Tenure Revision Task Force – co-chair
- Biochemistry Search Committee
- Institutional Research, Planning and Outcomes Assessment Search Committee

The Associate Director was also doing committee work:

- Children's Village Planning Committee (on-site daycare)
- Committee on Diversity

The Research Analyst served on:

- Monitoring Policies Subcommittee of the President's Commission on the Status of Women
- Gender Equity in Pay Committee

Sessions Organized/Moderated/Presented at Conferences

- Frehill: Organized and moderated the "Gender and Ethnic Diversity in Academic Science" workshop at the AAAS conference in Washington, D.C., February 2005.
- Frehill: Presentation on ADVANCE at NSF-HRDT conference in April 2005.
- Cannavale: Participant on Space Allocation panel at NSF PI meeting, May 2005.
- Frehill: Presentation on Indicators at NSF PI meeting, May 2005.
- Frehill: "Recruitment and Retention at NMSU ADVANCE," ASEE conference in Portland, Oregon, June 2005



- Frehill: "Its Just Not Fun Coming to Work Anymore: Faculty Exit Interviews" at the Pacific Sociological Association Annual Meetings in Portland, OR in April 2005
- Ketcham: "SWE Literature Review," presented at the joint Women in Engineering Programs and Advocates Network/National Association of Minority Engineering Program Administrators (WEPAN)/National Association of Minority Engineering Programs (NAMEPA) conference in Las Vegas, Nevada in May 2005.
- Frehill: Organizer and moderator of the Dean's Panel at the joint WEPAN/NAMEPA conference in Las Vegas, NV, April 2005.
- Sterling: "ADVANCE: "Institutional Transformation for Faculty Diversity," at the New Mexico Network for Women in Science and Engineering Annual Meeting, Albuquerque, NM, October 2005.
- Sterling and Cannavale: "ADVANCE: Institutional Transformation for Faculty Diversity," at the NMSU University Research Council Research Symposium, Las Cruces, NM, October 2005.

Distinguished Visiting Professor: In April, the ADVANCE Distinguished Visiting Professors Program co-sponsored the Department of Agronomy and Horticulture's annual Lowenstein Lecture, hosted by Dr. John Mexal, Professor, Agronomy and Horticulture. Lecture Panelists were: Dr. Jennifer Ryder Fox, Head, Horticulture and Crop science Department at California Polytechnic State University at San Obispo, CA; Dr. Anne Wagner, Manager of Environmental and Health Service for MolyCorp, Inc.; Dr. Ellen Peffley, Professor of Horticulture at Texas Tech University; and Dr. Virginia Lohr, Professor of Horticulture at Washington State University. All panelists are graduates of the NMSU Department of Agronomy and Horticulture.

Schedule – Agronomy and Horticulture Visiting Professors, April 2005:	
<i>ADVANCE/Lowenstein Lectures</i>	
• "2Y is not Y X or Why Science Needs Women"	Thursday, April 21
• "How NMSU Develops Plant and Environmental Scientists"	Friday, April 22, 2005
<i>Other Activities</i>	
• Luncheon with female faculty and students from College of Agriculture and Home Economics	
• Radio interview, "Women in Science,"	Tuesday, April 19, 2005
• Lynn Middle School Engineering Magnet School: Six presentations to 300 female students in 6 th , 7 th and 8 th grades,	Wednesday, April 20, 2005
• Hillrise Elementary School: Visited with 140 4 th and 5 th graders,	Thursday, April 21, 2005

In the fall, the ADVANCE Distinguished Visiting Professors Program sponsored Dr. Lydia E. Kavraki, Noah Harding Professor of Computer Science at Rice University. Dr. Kavraki has pioneered an algorithmic framework for modeling receptor-ligand interactions, and has worked on computer-assisted drug design and the large-scale functional annotation of proteins. She was included in the list of Top 100 Young Innovators of the MIT Technology Review Magazine in 2002. She was inducted to the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE) in 2004. Dr. Kavraki's visit was hosted by Dr. Karen Villaverde, College Assistant Professor of Computer Science and Graduate Faculty Member, and supported by the Department of Computer Science, and the College of Arts and Sciences.



Schedule – Lydia Kavradi, Visiting Professor, September 2005
"Geometry and Robotics Inspired Approaches in Structural Biology," Computer Science Departmental Colloquium, Wednesday, August 31, 2005
"From Robots to Biomolecules: Designing Amazing New Medicines", Lecture for the general public, Thursday, September 1, 2005
<i>Round Table Discussion with Graduate Students: How to Succeed in Graduate School and Research, September 1, 2005</i>
"Bioinformatics and the Design of Amazing New Medicines," Onate High School, Friday, September 2, 2005



III. PRODUCTS

The ADVANCE program at NMSU has produced an impressive array of products in a large number of STEM disciplines via the minigrants program that provides research and travel funds to women faculty in 19 departments at NMSU. These are listed in the annual reports.

Journal Publications

Alvarez, J. and C. Varsavsky. 2005. "Impossible Tilings". *Function*. 28, Part 4, 94-102.

Amster, P., C.G. Averbuj, M.C. Mariani and D. Rial. 2005. "A Black-Scholes Option Pricing Model for Transaction Costs". *Journal of Mathematical Analysis and Applications* 303, 2 (2005) 688-695.

Amster, P., M.C. Mariani, C. Rogers and C. Tiddell. 2005. "On two-point boundary value problems in multi-ion electrodiffusion". *Journal of Mathematical Analysis and Applications* 289, 2 (2004) 712-721.

Amster, P., P. DeNapoli and M.C. Mariani. 2005. "Periodic Solutions of A Resonant Third-Order Equation". *Nonlinear Analysis, Theory, Methods and Applications* 60, 3 (2005) 399-410.

Amster, P., P. DeNapoli and M.C. Mariani. 2005. "Periodic solutions of a resonant higher order equation". *Portugaliae Matematica*. 62, 1 (2005) 13-24.

Amster, P., P. DeNapoli and M.C. Mariani. 2005. "An n-dimensional pendulum-like equation via topological methods". *Nonlinear Analysis, Theory, Methods and Applications* 60, 2 (2005) 389-398.

Amster, P., P. DeNapoli and M.C. Mariani. 2005. "An n-dimensional pendulum-like equation". *Electronic Journal of Differential Equations*. (2004) 1-8.

Amster, P., P. DeNapoli and M.C. Mariani. 2005. "Boundary nonlinearities for a one dimensional p-Laplacian-like equation". *Revista de la Unión Matemática Argentina*. 45, 2 (2004) 1-10.

Ballyk, M., C.C. McCluskey, G.S.K. Wolkowicz, "Global analysis of competition for perfectly substitutable resources with linear response," *Journal of Mathematical Biology* 51: 458-490 (2005)

Conselice, C.J., K. Bundy, R. S. Ellis, J. Brinchmann, N. P. Vogt, & A. C. Phillips. "Constraints on the Relationship Between Stellar and Halo Masses of Disk Galaxies since $z \sim 1$ ". *ApJ*, 628, 160.

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Gasparim, E.T. and E. Ballico. 2005. "Vector bundles on a three dimensional neighborhood of a ruled surface". *Journal of Pure and Applied Algebra* 195 (1): 7-19.

Gehrke, M., H. Nagahashi and Y. Venema. 2005. "A Sahlqvist Theorem for distributive modal logics". *Annals of Pure and Applied Logic* 131 (1-3): 65-102.

Gehrke, M., J.M. Dunn and Palmigiano. Canonical extensions and relational completeness of some substructural logics, *Journal of Symbolic Logic* 70(3), 2005.

Gehrke, M., G. Bezhanishvili. Completeness of S4 with respect to the real line: revisited, *Annals of Pure and Applied Logic* 131, Issues 1-3, 287-301, January 2005.

Ginter, D.L. and M.J. Desmond. 2005. "Influence of foraging and roosting behavior on home range size and movement patterns of wintering Savannah Sparrows in south Texas". *Wilson Bulletin*. 117:63-71.

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- Frehill, Lisa M., Cecily Jeser-Cannavale, Lauren Ketcham. "The Impact of a Mentoring Program on Women and Men in Science and Engineering."
- Frehill, Lisa M. "The Impact of NSF-Funded ADVANCE: Institutional Transformation on Engineering Schools" submitted to the Women in Engineering Programs Advocates Network annual conference (potential proceedings paper).
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IV. Contributions

Within PI Discipline

The PI (Frehill) worked to prepare a number of manuscripts within the field of sociology. To some extent, the data related to the institution and the question of how to make meaningful and appropriate cross-institutional comparisons among the original nine ADVANCE institutions has formed the basis of one thread of work, measuring the status of women. This work will continue, with additional presentations and publications for later this year.

Other related research uses in-depth qualitative interviews and other programmatic records maintained by the ADVANCE program to understand how institutional forces affect faculty work lives. The PI (Frehill) worked with collaborators at other ADVANCE institutions on several projects related to exit interviews and dual career couples accommodations. The PI (Frehill) and the research analyst, also a sociologist, worked on several projects to be presented at sociology and educational management conferences. These projects examine the impact of the mentoring program and the study of space allocation that we have completed at NMSU.

The PI (Frehill) and the ADVANCE research staff produced an in-depth review of literature for the Society of Women Engineers' annual "Yearbook" edition in 2005 and have done this service again for 2006. The Graduate Research Assistant made a presentation at the joint WEPAN/NAMEPA conference (April 2005 in Las Vegas, NV) about the SWE Literature Review.

The PI (Frehill) was involved in writing a textbook on social inequality that integrates class, ethnicity, gender and sexuality. She also worked toward completing several research papers related to program evaluation and teen sexuality education programs.

Contributions to Other Disciplines

This year ADVANCE funds will assist in the preparation of scholarly work in eight STEM disciplines: agronomy and horticulture, biology, computer science, fishery and wildlife, food sciences, geological sciences, industrial engineering, and mathematical sciences. Wide-reaching contributions across the STEM fields have been and will continue to be made as a result of this grant.

Development of Human Resources

The ADVANCE faculty development, research and travel grants were essential to scholars' professional development. First, three awardees (Bhattacharya, Mostafa and Kersey) used their funds to improve their teaching via the Boot Camp for Professors program co-sponsored with the Teaching Academy. Michele Shuster used funds to attend educational teaching symposia. Chris Cramer attended the Annual Conference on Distance Teaching and Learning. The heavy teaching loads and institutional emphasis on teaching excellence means that such development opportunities are essential to faculty success at NMSU. In addition, faculty members received effectiveness training to promote their ability to balance research and teaching responsibilities. And mini-grants funded travel to the NSF Workshop in Albuquerque in November for four faculty members (Bhattacharya, Gasparim, Ma and Pivkina).

Second, the travel awards provided funding for Erin Silva and Paola Bandini to attend conferences in their fields to develop curricula and to strengthen professional networks. As can be seen the impressive list of activities in the 2005 annual report, collaborative activity is key to



women's success in academic STEM fields. As a result of her travel award, Erin Silva filed for USDA Organic Research grants.

Third, faculty like Irena Swanson of Mathematical Sciences, were able to gain release from teaching duties to strengthen their research publication records.

Fourth, Julieta Valles-Rosales of Industrial Engineering and Paola Bandini of Civil and Geological Engineering were able to use ADVANCE awards to leverage resources—additional funds or equipment—from the college and their departments. Both have also successfully competed for external research funding, with Valles-Rosales winning a \$62,192 grant from SCERP (with two co-PIs from the Department of Management, including her mentor Bonnie Daily) and Bandini receiving \$50,000 from the New Mexico Department of Transportation. As the ability to generate external funds has become more vital within the promotion and tenure process at NMSU, these early successes bode well for both of these faculty members within the College of Engineering. Nancy McMillan of Geology received \$25,000 from the Army to continue her research on tracing geologic processes and terrorist trading

Fifth, the program engaged in activities to develop women who are currently ranked as “college track” at NMSU to enable them to compete successfully for future tenure track openings. All five women in this case are part of “dual career couples”. Funds were provided to Dr. Michele Shuster in Biology for this purpose. Dr. Donghui Zhang assumed her position (in 2005) as College Assistant Professor with a shared appointment with Chemistry/Biochemistry and Physics as part of a dual career couple. The ADVANCE program pledged one third of her support for two years (in 2005, there are no female faculty in Physics). The program also made modest pledges of \$1,500 annually for two years to two social science women, also related to dual career accommodations. In both cases, part-time teaching positions were secured (as requested by the women, both of whom have young children). The travel funds were pledged to ensure that these scholars are able to attend at least one professional conference in their field to maintain their research productivity and scholarly networks. The program contributed \$6,000 towards a dual career accommodation for Dr. Kate Briggs' appointment as an Associate Professor of Women's Studies. And finally, the program pledged \$6,000 for equipment and travel for the first tenure-track female geographer in that department's history.

Sixth, the ADVANCING Leaders Program as well as the individual efforts that target assistance to new department heads develops the managerial capabilities of women in science. A majority of the ADVANCING Leaders participants are women. Of the two new interim department heads appointed in 2005, both became full Department Heads: Martha Mitchell (Chemical Engineering) and Sonya Cooper (Engineering Technology). Both are associate professors and both are the first women department heads within the College of Engineering. Discussions between the ADVANCE program, the Dean of the College of Engineering, and the two new department heads are continuing to develop plans to improve their skills as department heads and to ensure they maintain research productivity essential for promotion to full professor. A graduate of the ADVANCING Leaders Program, Tracy Sterling (Weed Science) assumed the role of ADVANCE PI and Program Director when Frehill took professional leave.

Seventh, the program provided matching start-up funds to hire Cynthia Zoski (Chemistry and Biochemistry) and assistant state climatologist Deborah Bathke (Agronomy and Horticulture), and Kathryn Hanley (Biology). Funds were committed for Heather Throop (Biology) and Kanani Lee (Physics) for 2006. ADVANCE funds continue to help attract



high-quality female faculty to increase the number of STEM female faculty at NMSU; at present, 35% of new STEM faculty are female, thanks to ADVANCE.

Eighth, ADVANCE has helped build an infrastructure to support sustained efforts at increasing gender and ethnic equity by sending Dario Silva, Director, Employee Assistance Program and Laura Godwin, Assistant Professor, Theatre to the Center for Research on Learning and Teaching Theatre Program Summer Institute. Building on their training, ADVANCE will work to develop a consistent, institutionalized use of effective theatre techniques to promote gender and ethnic equity among the faculty and students at NMSU.

Physical, institutional, or information resources that form the infrastructure for research and education.

The ADVANCE program was instrumental in providing significant support for increased information resources at NMSU for STEM and non-STEM fields. Working with the Office of the Provost, the Hispanic Faculty/Staff Caucus, the Teaching Academy and Faculty Senate the program provided support for broad-based institutional training. ADVANCE program funds have been essential to the launch of the NMSU Teaching Academy.

In addition, the program, in collaboration with the University of Texas at EL Paso ADVANCE Program, has produced a brochure on "Dual Career Couples" for use by the institutions in solving dual career dilemmas. The program brought top administrators and department heads together to attend Virginia Valian's briefing dinner and discuss gender equity in recruitment and working across colleges and disciplines. The program has established a reputation among department heads of providing quality, value-added programming that is truly relevant to their administrative roles. NMSU President Martin has continued these conversations with President Natalicio of UTEP, demonstrating an institutional commitment to dual career issues.

The ADVANCE program website, and the vital connections maintained with the other eight ADVANCE institutions have been essential in making information about institutional change easily accessible to a wide audience. The PI (Frehill until 5/08/05 and Sterling starting 5/15/05), Research Analyst, and Program Coordinator made numerous presentations about women's status in STEM fields and the ADVANCE Program to various NMSU and national audiences.

Program personnel participation in other institutional efforts - notably a campus-wide Provost's Taskforce on Roles and Rewards, the President's Commission on the Status of Women, the Committee on Diversity and the Employee Climate Survey Committee are important in disseminating the information learned via the many data collection efforts of the program across campus. Such involvement insures that issues related to the status of women at the institution are kept at the forefront of these other institutional efforts.

Other Aspects of Public Welfare

The PI's (Frehill) research on diversity in engineering is important in determining how more women and under represented minorities can be recruited and retained at all levels of the engineering pipeline. Affecting the pipeline is also one important role of the Distinguished Visiting Professor program. This year's spring Distinguished Visiting Professors, the ADVANCE/Lowenstein lecturers (Dr. Jennifer Ryder Fox, Head, Horticulture and Crop science Department at California Polytechnic State University at San Obispo, CA; Dr. Anne Wagner,



Manager of Environmental and Health Service for Molycorp, Inc.; Dr. Ellen Peffley, Professor of Horticulture at Texas Tech University; and Dr. Virginia Lohr, Professor of Horticulture at Washington State University), met with elementary and middle school classes as part of their visits. These women were an inspiration to the young girls in these classes, providing them with role models affirming that there are women in science. Dr. Lydia Kavraki, the fall Distinguished Visiting Professor, met with high school students as part of her visit.



Appendix 1

Institutional Data Tables and Graphs

Table 1: New Mexico State University Faculty by Category, Fall 2005

Faculty Category	All NMSU			Non-STEM and Non-SBS Departments			Social and Behavioral Science (SBS) Departments ¹			ADVANCE (STEM) Departments ¹		
	All	Female	%Female	All	Female	%Female	All	Female	%Female	All	Female	%Female
Tenure/Tenure Track	611	202	33.1%	255	105	41.2%	51	28	54.9%	242	46	19.0%
Temporary/Non-tenure Track ²	113	71	62.8%	47	33	70.2%	8	5	62.5%	31	18	58.1%
Total	724	273	37.7%	302	138	45.7%	59	33	55.9%	273	64	23.4%

¹For a complete list of Social and Behavioral Science Departments and ADVANCE (STEM) Departments, see Table 3.

*Data Source: Human Resources and Information Communication Technologies

Table 2: Distribution of NMSU STEM Faculty by Category and Gender, Fall Semesters 1995 - 2005

	Tenure/Tenure Track			Non-Tenure Track			All Categories		
	Total	Female	% Female	Total	Female	% Female	Total	Female	% Female
1995	251	34	13.5%	35	15	42.9%	286	49	17.1%
1996	246	33	13.4%	31	15	48.4%	277	48	17.3%
1997	250	40	16.0%	31	17	54.8%	281	57	20.3%
1998	247	41	16.6%	36	18	50.0%	283	59	20.8%
1999	240	42	17.5%	27	16	59.3%	267	58	21.7%
2000	231	40	17.3%	32	22	68.8%	263	62	23.6%
2001	233	37	15.9%	30	18	60.0%	263	55	20.9%
2002	232	41	17.7%	39	19	48.7%	271	60	22.1%
2003	236	42	17.8%	24	16	66.7%	260	58	22.3%
2004	241	46	19.1%	23	13	56.5%	264	59	22.3%
2005	242	46	19.0%	31	18	58.1%	273	64	23.4%

*Data Source: Human Resources and Information Communication Technologies

Table 3: Fall 2005 STEM and SBS Departmental Faculty Sex Composition

	Tenured and Tenure Track			Non-Tenure Track			Non-Tenure Track as % All Females
	All	Female	% Female	All	Female	% Female	
Agriculture and Home Economics	66	19	28.8%	3	1	33.3%	5.0%
Agronomy and Horticulture	17	4	23.5%	1	0	0.0%	0.0%
Animal and Range Science	19	2	10.5%	1	0	0.0%	0.0%
Entomology, Plant Pathology and Weed Science	13	3	23.1%	0	0	0.0%	0.0%
Family and Consumer Science	10	8	80.0%	0	0	0.0%	0.0%
Fishery and Wildlife Sciences	7	2	28.6%	1	1	100.0%	33.3%
Arts and Sciences	105	21	20.0%	24	16	66.7%	43.2%
Astronomy	9	1	11.1%	2	1	50.0%	50.0%
Biology	18	4	22.2%	1	1	100.0%	20.0%
Chemistry and Biochemistry	16	2	12.5%	5	4	80.0%	66.7%
Computer Sciences	12	2	16.7%	2	2	100.0%	50.0%
Geological Sciences	6	2	33.3%	0	0	0.0%	0.0%
Mathematical Sciences	29	10	34.5%	14	8	57.1%	44.4%
Physics	15	0	0.0%	0	0	0.0%	0.0%
Engineering	73	6	8.2%	4	2	50.0%	25.0%
Electrical and Computer Engineering	21	1	4.8%	1	1	100.0%	50.0%
Chemical Engineering	7	1	14.3%	0	0	0.0%	0.0%
Civil and Geological Engineering	14	2	14.3%	1	0	0.0%	0.0%
Engineering Technology	11	1	9.1%	0	0	0.0%	0.0%
Industrial Engineering	4	1	25.0%	1	0	0.0%	0.0%
Mechanical Engineering	13	0	0.0%	1	1	100.0%	0.0%
Survey Engineering	3	0	0.0%	0	0	0.0%	0.0%
Social and Behavioral Sciences	51	22	43.1%	8	5	62.5%	18.5%
Communications	6	3	33.3%	3	3	100.0%	50.0%
Criminal Justice	6	3	50.0%	1	0	0.0%	0.0%
Geography	5	1	0.0%	0	0	0.0%	0.0%
Government	9	2	33.3%	1	1	100.0%	33.3%
Psychology	12	4	38.5%	0	0	0.0%	0.0%
Sociology and Anthropology	13	9	63.6%	3	1	33.3%	10.0%

*Data Source: Human Resources and Information Communication Technologies

**Table 4. Distribution within Sex and Field of Rank and Tenure Status of NMSU Faculty,
Fall 2005**

	Social and Behavioral Sciences (SBS)				ADVANCE STEM Fields				Non-STEM and Non-SBS			
	Females		Males		Females		Males		Females		Males	
	#	%	#	%	#	%	#	%	#	%	#	%
Non-Contract												
Instructor	0	0.0%	0	0.0%	1	16.7%	5	83.3%	16	94.1%	1	5.9%
Assistant	4	66.7%	2	33.3%	12	75.0%	4	25.0%	10	55.6%	8	44.4%
Associate	1	100.0%	0	0.0%	3	60.0%	2	40.0%	6	60.0%	4	40.0%
Full	0	0.0%	1	100.0%	2	50.0%	2	50.0%	1	50.0%	1	50.0%
Tenure-Track/Tenured												
Assistant, Tenure-track	7	50.0%	7	50.0%	17	25.4%	50	74.6%	47	60.3%	31	39.7%
Assistant, Tenured	1	50.0%	1	50.0%	0	0.0%	2	100.0%	1	25.0%	3	75.0%
Associate, Tenure-track	2	66.7%	1	33.3%	5	35.7%	9	64.3%	9	47.4%	10	52.6%
Associate, Tenured	9	50.0%	9	50.0%	10	16.7%	50	83.3%	25	36.2%	44	63.8%
Full, Tenured	3	21.4%	11	78.6%	14	14.1%	85	85.9%	22	26.2%	62	73.8%
Total	27	45.8%	32	54.2%	64	23.4%	209	76.6%	137	45.5%	164	54.5%
Non-Contract, Total	5	62.5%	3	37.5%	18	58.1%	13	41.9%	33	70.2%	14	29.8%
Tenure-Track, Total	9	52.9%	8	47.1%	22	27.2%	59	72.8%	56	57.7%	41	42.3%
Tenured, Total	13	38.2%	21	61.8%	24	14.9%	137	85.1%	48	30.6%	109	69.4%

*Data Source: Human Resources and Information Communication Technologies

Table 5: Faculty by Gender and Ethnicity, Number and Percent of Total within Tenured and Tenure-Track and Non-Tenure Track

2004		Tenured and Tenure-Track						Non-Tenure Track				
		Hispanic	Asian	Black	White	Am. Indian	Not Coded	Hispanic	Asian	Black	White	Not Coded
STEM	Female	7 2.9%	5 2.1%	0 0.0%	32 13.3%	0 0.0%	1 0.4%	1 4.2%	0 0.0%	0 0.0%	12 50.0%	1 4.2%
	Male	14 5.8%	21 8.8%	2 0.8%	156 65.0%	1 0.4%	1 0.4%	0 0.0%	1 4.2%	0 0.0%	9 37.5%	0 0.0%
	Total	21	26	2	188	1	2	1	1	0	21	1
SBS	Female	3 6.0%	1 2.0%	0 0.0%	15 30.0%	0 0.0%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	4 36.4%	1 9.1%
	Male	2 4.0%	0 0.0%	0 0.0%	28 56.0%	0 0.0%	0 0.0%	1 9.1%	0 0.0%	0 0.0%	4 36.4%	1 9.1%
	Total	5	1	0	43	0	1	1	0	0	8	2

2005		Tenured and Tenure-Track						Non-Tenure Track				
		Hispanic	Asian	Black	White	Am. Indian	Not Coded	Hispanic	Asian	Black	White	Not Coded
STEM ¹	Female	7 2.6%	6 2.2%	0 0.0%	32 11.7%	0 0.0%	1 0.4%	1 0.4%	0 0.0%	0 0.0%	16 5.9%	1 0.4%
	Male	15 5.5%	21 7.7%	2 0.7%	155 56.8%	1 0.4%	2 0.7%	0 0.0%	0 0.0%	0 0.0%	9 3.3%	4 1.5%
	Total	22	27	2	187	1	3	1	0	0	25	5
SBS ²	Female	3 5.2%	1 1.7%	0 0.0%	18 31.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 6.9%	1 1.7%
	Male	2 3.4%	0 0.0%	0 0.0%	27 46.6%	0 0.0%	0 0.0%	1 1.7%	0 0.0%	0 0.0%	2 3.4%	0 0.0%
	Total	5	1	0	45	0	0	1	0	0	6	1
Non-STEM/ And Non-SBS ³	Female	11 3.6%	3 1.0%	2 0.7%	84 27.8%	2 0.7%	3 1.0%	6 2.0%	0 0.0%	0 0.0%	26 8.6%	1 0.3%
	Male	21 7.0%	6 2.0%	1 0.3%	118 39.1%	3 1.0%	1 0.3%	3 1.0%	0 0.0%	0 0.0%	10 3.3%	1 0.3%
	Total	32	9	3	202	5	4	9	0	0	36	2

*Data Source: Human Resources and Information Communication Technologies

¹ADVANCE Departments

²Social and Behavioral Science Departments

³Departments that are not ADVANCE departments nor Social and Behavioral Science Departments

Table 6A: Assistant Professor Cohorts, ADVANCE (STEM) Departments

Cohort Year	# In Cohort		Tenured		Left Institution				Not yet tenured	
					After P/T		Without P/T			
	M	F	M	F	M	F	M	F	M	F
1995	9	4	8	1	1	1	0	2	0	0
1996	10	1	4	1	3	0	3	0	0	0
1997	10	0	7	0	0	0	3	0	0	0
1998	5	3	4	2	0	1	0	0	1	0
1999	7	4	5	3	0	0	2	0	0	1
2000	6	2	2	0	0	0	1	1	3	1
2001	18	1	3	0	0	0	5	0	10	1
2002	11	6	1	1	0	0	2	0	8	5
2003	14	4	0	0	0	0	0	1	14	3
2004	7	5	0	0	0	0	0	0	7	5
2005	5	2	0	0	0	0	0	0	5	2
Total	102	32	34	8	4	2	16	4	48	18

Total 1995-2004 97 30 34 8 4 2 16 4 43 16

*Data Source: Office of Institutional Research, Planning, and Outcomes Assessment

Table 6B: Assistant Professor Cohorts, Non-ADVANCE (STEM) Departments

Cohort Year	# In Cohort		Promoted		Left Institution				Not yet tenured	
					After P/T		Without P/T			
	M	F	M	F	M	F	M	F	M	F
1995	10*	13	5	4	1	2	3	7	0	0
1996	9	15	7	6	0	2	2	7	0	0
1997	8	13	2	6	1	2	5	5	0	0
1998	10	5	3	2	0	0	7	3	0	0
1999	8	5	5	2	0	0	2	3	1	0
2000	10	9	2	0	0	0	3	3	5	6
2001	4	13	1	1	0	0	0	1	3	11
2002	14	20	2	1	0	0	2	4	10	15
2003	12	7	0	0	0	0	0	0	12	7
2004	6	10	0	0	0	0	0	2	6	8
2005	2	5	0	0	0	0	0	0	2	5
Total	93	115	27	22	2	6	24	35	39	52

Total 1995-2004 91 110 27 22 2 6 24 35 37 47

*One male on leave for the year 2005-2006 therefore the male columns only add up to nine.

**Data Source: Office of Institutional Research, Planning, and Outcomes Assessment

Table 7A: Associate Professor Cohorts, ADVANCE (STEM) Departments

Cohort Year	# In Cohort		Promoted		Left		Not yet promoted		Not yet tenured	
	M	F	M	F	M	F	M	F	M	F
1995	6	1	0	1	2	0	4	0	0	0
1996	7	3	2	1	2	1	3	1	0	0
1997	9	1	2	0	3	0	4	1	0	0
1998	8	4	5	1	0	1	3	2	0	0
1999	10	2	5	0	2	1	3	1	0	0
2000	9	3	0	1	3	2	6	0	0	0
2001	7	1	1	0	1	1	5	0	0	0
2002	5	1	1	0	1	0	3	1	1	0
2003	7	0	0	0	0	0	7	0	0	0
2004	8	2	0	0	0	0	8	2	1	0
2005	5	5	0	0	0	0	5	5	0	1
Total	81	23	16	4	14	6	51	13	2	1

Total
1995-
2004

76 18 16 4 14 6 46 8 2 0

*Data Source: Office of Institutional Research, Planning, and Outcomes Assessment

Table 7B: Associate Professor Cohorts, Non-ADVANCE (STEM) Departments

Cohort Year	# In Cohort		Promoted		Left		Not yet promoted		Not yet tenured	
	M	F	M	F	M	F	M	F	M	F
1995	8	11	1	3	2	5	5	3	0	0
1996	11	6	5	4	3	1	3	1	0	0
1997	5	3	1	1	0	1	4	1	0	0
1998	7	9	2	2	2	4	3	3	0	0
1999	6	10	3	2	1	3	2	5	0	0
2000	4	4	0	0	0	1	4	3	0	0
2001	2	5	0	0	1	2	1	3	0	0
2002	11	7	1	0	0	1	10	6	2	1
2003	5	7	0	0	2	0	3	7	0	2
2004	4	4	0	0	0	0	4	4	1	2
2005	7	6	0	0	0	0	7	6	0	0
Total	70	72	13	12	11	18	46	42	3	5

Total 1995-2004

63 66 13 12 11 18 39 36 3 5

*Data Source: Office of Institutional Research, Planning, and Outcomes Assessment

Table 8: Tenured and Tenure Track Age, Time at NMSU, Experience and Time to Tenure, 2005

	SBS Departments ¹			STEM Departments ²			Non-STEM/SBS Departments ³		
	Males	Females	Gender Gap ⁴	Males	Females	Gender Gap	Males	Females	Gender Gap
Age									
Mean	48.6	44.9	3.7	48.9	46.4	2.5	51.5	48.3	3.2
Median	50.0	43.5	6.5	48.0	45.0	3.0	52.5	48.0	4.5
Std. Dev.	8.2	7.5		8.9	7.7		9.1	8.8	
Minimum	30	32		30	32		31	29	
Maximum	61	59		73	64		70	68	
# of valid cases	29	22		196	46		150	105	
Time at NMSU									
Mean	12.4	9.2	3.2	13.1	9.2	3.9	12.9	8.2	4.7
Median	11.7	9.1	2.6	11.1	7.5	3.6	11.2	5.1	6.1
Std. Dev.	7.8	7.5		9.6	6.6		8.7	6.3	
Minimum	0.1	0.1		0.0	0.1		0.1	0.1	
Maximum	32.3	22.1		41.0	22.2		34.1	22.1	
# valid cases	29	22		196	46		150	105	
Years of Experience⁵									
Mean	17.7	12.5	5.2	19.0	15.1	3.9	18.2	12.2	6.0
Median	16.3	13.3	3.0	18.3	14.8	3.5	17.3	10.3	7.0
Std. Dev.	8.4	7.0		9.8	7.3		9.5	7.4	
Minimum	1.9	2.0		2.3	2.1		1.9	0.9	
Maximum	32.3	28.3		45.3	31.3		39.3	29.3	
# valid cases	29	22		196	46		150	105	

¹Social and Behavioral Science Departments²ADVANCE Departments³Departments that are not ADVANCE departments nor Social and Behavioral Science Departments⁴Gender Gap: Male minus Female.⁵Years of experience: Current year minus date of Ph.D.

*Data Source: Human Resources and Information Communication Technologies

Table 9: Tenure and Tenure Track Monthly Salary by Rank, 2005

	SBS Departments ¹			STEM Departments ²			Non-STEM and Non-SBS ³		
	Males	Females	Gender Gap ⁴	Males	Females	Gender Gap*	Males	Females	Gender Gap ⁴
Monthly Salary:									
Assistant Professors									
Mean	\$4,375.88	\$4,155.20	\$220.68	\$6,066.31	\$5,809.85	\$256.46	\$4,910.09	\$4,762.88	\$147.21
Median	\$4,286.01	\$3,964.32	\$321.69	\$5,910.10	\$5,438.19	\$471.91	\$4,799.63	\$4,316.94	\$482.69
Std. Dev.	\$829.28	\$737.50		\$1,198.80	\$1,204.09		\$1,092.58	\$1,202.24	
Minimum	\$2,890.05	\$3,666.67	Ratio ⁵ :	\$4,075.64	\$4,345.63	Ratio ⁵ :	\$3,536.15	\$3,333.33	Ratio ⁵ :
Maximum	\$5,624.41	\$5,953.94	0.92	\$8,598.90	\$8,538.25	0.92	\$7,969.35	\$9,088.89	0.90
# valid cases	8	8		52	17		34	48	
Monthly Salary:									
Associate Professors									
Mean	\$5,675.36	\$5,253.56	\$421.80	\$6,721.47	\$6,383.32	\$338.15	\$5,996.72	\$5,839.93	\$156.79
Median	\$5,848.51	\$4,925.75	\$922.76	\$6,524.97	\$6,236.84	\$288.13	\$5,765.98	\$5,661.99	\$103.99
Std. Dev.	\$1,205.51	\$843.67		\$1,206.13	\$1,004.78		\$1,429.96	\$1,351.42	
Minimum	\$3,573.52	\$4,232.57	Ratio ⁵ :	\$4,533.57	\$4,883.90	Ratio ⁵ :	\$4,025.52	\$4,364.43	Ratio ⁵ :
Maximum	\$7,271.00	\$6,317.94	0.84	\$8,987.65	\$8,861.67	0.96	\$10,232.35	\$9,379.94	0.98
# valid cases	10	11		59	15		54	34	
Monthly Salary:									
Full Professors									
Mean	\$6,729.50	\$7,669.91	(\$940.41)	\$7,788.51	\$6,878.17	\$910.34	\$7,449.37	\$6,926.34	\$523.03
Median	\$7,319.25	\$7,235.18	\$84.07	\$7,654.44	\$6,805.63	\$848.81	\$7,432.56	\$6,834.92	\$597.64
Std. Dev.	\$1,026.58	\$908.60		\$1,447.30	\$604.78		\$1,750.65	\$1,305.80	
Minimum	\$4,870.86	\$7,060.36	Ratio ⁵ :	\$4,113.07	\$6,101.06	Ratio ⁵ :	\$4,519.17	\$4,910.83	Ratio ⁵ :
Maximum	\$7,782.47	\$8,714.21	0.99	\$11,541.53	\$8,155.14	0.89	\$11,143.82	\$9,855.61	0.92
# valid cases	11	3		85	14		62	22	

¹Social and Behavioral Science Departments

²ADVANCE Departments

³Departments that are not ADVANCE departments nor Social and Behavioral Science Departments

⁴Gender Gap: Male minus Female.

⁵Ratio: consistent with conventional reporting on pay gaps between men and women, the ratio of women's to men's median earnings was computed and reported. This ratio is interpreted as the amount the average woman earns for every dollar the average man earns.

*Data Source: Human Resources and Information Communication Technologies

Table 10: Non-Contract Age, Time at NMSU, Experience and Monthly Salary, 2005

	SBS Departments ¹			STEM Departments ²			Non-STEM/SBS ³		
	Males	Females	Gender Gap ⁴	Males	Females	Gender Gap	Males	Females	Gender Gap ⁴
Age									
Mean	58.6	53	5.6	49.6	44.4	5.2	54	53.3	0.7
Median	57	58	-1	58	44	14	56	54	2
Std. Dev.	5.7	12.3		13.4	8.1		7.8	6.6	
Minimum	54	35		33	30		40	41	
Maximum	56	64		68	64		63	63	
# valid cases	3	5		13	18		14	33	
Time at NMSU									
Mean	6.6	7.7	-1.1	4.5	6.8	-2.3	6.3	5.4	0.9
Median	6.6	6.1	0.5	3.3	4.1	-0.8	6.1	8.1	-2
Std. Dev.	2.5	9.5		6.8	7.4		6.2	6.2	
Minimum	4.1	0.1		0.1	0.1		0.1	0.1	
Maximum	9	21.1		22.3	23.1		21.1	19.1	
# valid cases	3	5		13	18		14	33	
Years of Experience									
Mean	19.6	15.5	4.1	15	14.4	0.6	20.3	16.2	4.1
Median	15.3	17.3	-2	23.3	12.3	11	19.3	18.3	1
Std. Dev.	12.11	13.3		11.7	7.9		9.7	8.7	
Minimum	10.26	1.3		0.8	2.9		4.3	2.3	
Maximum	33.28	34.3		37.3	39.3		37.3	36.3	
# valid cases	3	5		13	18		14	33	
Monthly Salary: All Non-Contract									
Mean	\$4,055.88	\$3,578.45	\$477.43	\$4,070.71	\$4,078.98	-\$8.27	\$4,191.36	\$3,986.83	\$204.53
Minimum	\$3,432.62	\$3,172.92		\$1,252.56	\$2,385.84		\$2,570.31	\$1,288.08	
Maximum	\$5,135.00	\$4,207.33		\$6,690.56	\$6,323.37		\$6,000.00	\$8,376.03	
# valid cases	3	5		13	17		14	33	
Monthly Salary: Excluding Instructor									
Mean	\$4,055.88	\$3,578.45	\$477.43	\$4,729.35	\$4,083.62	\$645.73	\$4,316.05	\$4,377.26	-\$61.21
Minimum	\$3,432.62	\$3,172.92		\$1,252.56	\$2,385.84		\$2,736.58	\$2,263.62	
Maximum	\$5,135.00	\$4,207.33		\$6,690.56	\$6,323.37		\$6,000.00	\$8,376.03	
# valid cases	3	5		8	17		13	17	

¹Social and Behavioral Science Departments

²ADVANCE Departments

³Departments that are not ADVANCE departments nor Social and Behavioral Science Departments

⁴Gender Gap: Male minus Female.

*Data Source: Human Resources and Information Communication Technologies

Table 11: NMSU Administrative Leadership Positions, Fall 2002 and 2005

	2002				2005			
	Total	Male	Female	% Female	Total	Male	Female	% Female
STEM¹ Department Heads	19	17	2	10.5%	19	16	3	15.8%
STEM¹ Associate Department Heads	7	6	1	14.3%	5	5	0	0.0%
STEM¹ Assistant Department Heads	1	1	0	0.0%	2	2	0	0.0%
Vice Presidents/Provosts	5	3	2	40.0%	9	6	3	33.3%
Vice Provosts	3	1	2	66.7%	6	3	3	50.0%
Deans¹	8	5	2	25.0%	8	5	3	37.5%
Associate Deans	11	7	4	36.4%	15	10	5	33.3%

¹ADVANCE Departments.

²The three female deans in 2005 were the Dean of the Graduate School, the Dean of the College of Arts and Sciences, and the Library Dean. A search is in progress to fill the position of the Dean of the College of Agriculture and Home Economics.

*Data Source: Institutional Fact Book

Table 12: Social and Behavioral Science (SBS) Faculty, ADVANCE (STEM) Faculty , and Faculty not in ADVANCE Departments nor Social and Behavioral Science Departments (Non-STEM and Non-SBS) Holding Regents' Professorships, 2005

	Total	Men	Women
SBS Departments	2	1	1
STEM Departments	10	9	1
Non-STEM and Non-SBS	7	6	1
Total	19	16	3

*Data Source: Regents' Professorship Webpage.

Table 13: Gender Distribution of Tenure and Promotion Committees 1997-2005

	College of Agriculture and Home Economics			College of Arts and Sciences			College of Engineering		
	Total	Female	% Female	Total	Female	% Female	Total	Female	% Female
1997-1998	N/A	N/A	N/A	6	0	0.0%	6	0	0.0%
1998-1999	5	1	20.0%	6	0	0.0%	7	0	0.0%
1999-2000	5	2	40.0%	6	1	16.6%	6	0	0.0%
2000-2001	5	2	40.0%	6	1	16.6%	7	0	0.0%
2001-2002	5	2	40.0%	6	1	16.6%	6	0	0.0%
2002-2003	5	2	40.0%	6	1	16.6%	6	0	0.0%
2003-2004	5	2	40.0%	6	2	33.3%	5	0	0.0%
2004-2005	5	2	40.0%	6	2	33.3%	5	0	0.0%
2005-2006	7	3	42.9%	6	3	50.0%	6	1	16.6%

*Data Source: Associate Deans

Table 14: Women as a Percent of All Ph. D. Recipients Nationwide, 2003, Post Docs, 2001, Academic Employment, 2001 and NMSU Faculty, 2005

	Physical Sciences ¹	Biological and Agricultural Sciences ²	Earth and Atmospheric Sciences ³	Mathematical Sciences ⁴	Computer Sciences ⁵	Engineering ⁶
National, 2003	26.9%	44.0%	33.1%	26.5%	20.2%	17.0%
Post Docs, 2001	23.1%	43.1%	25.0%	25.0%	0.0%	22.2%
Employed in Academia, 2001	12.1%	31.3%	18.6%	13.6%	18.2%	7.8%
NMSU Faculty⁷, 2005	7.5%	20.8%	33.3%	32.1%	16.7%	8.2%

¹Physical Sciences Includes: Astronomy, Chemistry and Biochemistry, and Physics

²Biological and Agricultural Sciences Includes: Agronomy and Horticulture; Entomology, Plant Pathology and Weed Science; Animal and Range Sciences; Fishery and Wildlife Sciences and Biology

³Earth and Atmospheric Sciences Includes: Geological Sciences

⁴Mathematical Sciences Includes: Mathematical Sciences

⁵Computer Sciences Includes: Computer Science

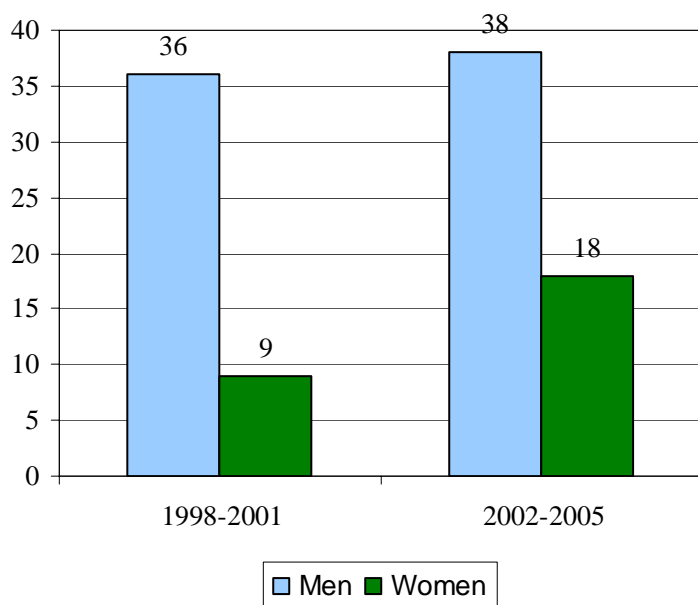
⁶Engineering Includes: Chemical Engineering; Civil and Geological Engineering; Electrical and Computer

⁷Engineering; Engineering Technology; Industrial Engineering; Mechanical Engineering and Survey Engineering

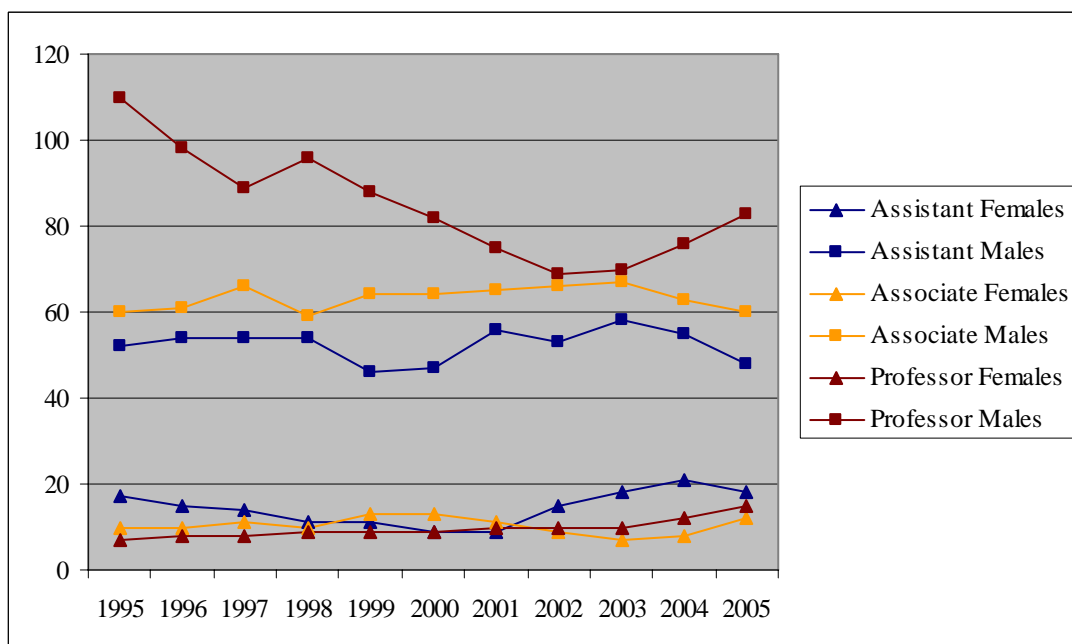
*Tenured and Tenure-Track Faculty Only.

*Data Source: Human Resources and Information Communication Technologies

Recruitment of New STEM Faculty to NMSU Pre-ADVANCE and During ADVANCE



Number of Male and Female STEM Faculty at NMSU by Rank



EVALUATION OF ADVANCE AT NMSU

December, 2005

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I. THE VISIT

On December 1 and 2, I met with academic and other administrators now involved with one or more activities of the ADVANCE program, several STEM (past or current) department heads, and faculty serving on ADVANCE committees. The schedule was created to allow the collection of information and insights from people most knowledgeable about ADVANCE's functioning, and/or those most knowledgeable about aspects of the university that will affect the institutional transformation central to NSF program's goals. After my visit, I had several long phone calls, including one with President Martin, who was traveling while I was on campus. Meetings began with a discussion of the recommendations made by the NSF site visit team in late 2004. Follow up on the status of the issues raised in that report naturally led to an exploration of institutional factors that have affected the progress, or lack of progress, on each.

II. ADVANCE IN ITS FOURTH YEAR

A. Leadership changes

Professor Tracy Sterling became PI with the mid-year departure of Professor Lisa Frehill. Dr. Sterling has been involved in the program since the beginning of its funding, and has come up to speed quickly. She has long been active in faculty governance at NMSU and has knowledge and experience that will be essential as the program plans for the transition away from NSF funding. As part of her preparation for leadership, planning for transition, and publicity of sustainability efforts, she met individually with every one of the STEM department heads (or chairs), chairs of ADVANCE committees, and co-PIs during the summer months.

As visitors have previously repeatedly reported, ADVANCE was widely identified with Dr. Frehill. The smoothness of the leadership change speaks to the institutionalization of the program, the strength of the "cadre of faculty champions of diversity" discussed by the 2004 site visitors, Dr. Sterling's efforts to sustain ADVANCE, and the excellent administration of the program, by Ms. Hunt. Now, instead of Lisa Frehill as the "go to" person (for example, when the Human Resources office fields an inquiry about dual career hiring), the ADVANCE Program is the go-to place.

This change, however, also points to the lack of institutionalizing OUTSIDE of ADVANCE of many of the duties it took on to facilitate the recruitment and retention of STEM women in the absence of adequate performance of these duties elsewhere on campus. In the coming year, decisions must be made about this situation (see section, below).

There has also been continued turnover of the Co-PIs. At this time the only Co PI who began with ADVANCE in 2002 who remains a Co PI is the Associate Dean of the College of Agriculture and Home Economics, Leroy Daugherty.

B. Continuation of existing activities

The program continues to run the mentoring, visiting professor, ADVANCING Leaders, faculty development, and small grants programs. Dissemination of program results has also continued. The leadership has worked with departmental leaders on STEM faculty recruitment and retention. These activities are delineated in the program's reports.

The committee system has largely functioned with the delegated responsibilities designed in the first year. With a smooth running program office and experienced staff, the Steering Committee has not been active. Its various members are, of course, in frequent contact with the program leadership as called for by their particular responsibilities.

C. Undergraduate initiative

An undergraduate research scholarship program is now in place, which provides women faculty with research assistance, and undergraduate STEM women with a valuable experience. This initiative is a good example of an activity in which external donors could relatively easily see a clear need and clear benefits. Funding for this initiative comes from redirecting stipends for faculty mentors. Payments of stipends has been assessed as unnecessary for participation, and will be discontinued at end of year four.

D. Post-award funding

Led by ADVANCE PI Sterling, an application was developed for a New Mexico legislative initiative, "Advancing Faculty Diversity." It was submitted by NMSU for \$800,000, to "recruit and retain minority and women faculty in the universities of New Mexico in fields where they are traditionally under-represented" (see <http://www.nmsu.edu/~legislat/>).

Dr. Sterling is also preparing a proposal for NSF's PAID program, to be submitted in January 2006. This funding would support training and dissemination activities, while sustaining some programmatic efforts at NMSU as ADVANCE works toward institutionalization.

Finally, to conserve funds in the absence of an institutional commitment to continue funding the ADVANCE program office, the 2006 spending plan has been adjusted. As the program enters its fifth year, most budgeted funds for start-up packages and research and travel grants have been spent. Over the first four years of ADVANCE, almost all female STEM faculty hired before year four have received at least one of these grants. The remaining funds in these categories will be redirected to sustainable efforts, including the ADVANCING Leaders program, Undergraduate Researcher Scholarships (see C, above), Faculty Development mini-grants (up to \$500 for travel), and faculty development programming (e.g., workshops).

With the end of year four, ADVANCE no longer has a full time secretary. Redirecting funds to sustainable initiatives will decrease administrative work, and Ms. Hunt expects student assistants to be adequate support. Ms. Zaldo has accepted a promotion and transfer to another division.

E. The "cadre" of faculty champions for campus diversity

During its visit a year ago, the NSF site review team identified the emergence of a critical mass of faculty, growing out of the mentoring program and other ADVANCE activities. The team envisioned this cadre as a base for inhibiting faculty incivility, for monitoring personnel committees, and for participating in the training of personnel-related committees and department chairs. They concluded "If this ad hoc 'cadre' is developed and enlarged, then it will be a fairly unique strategy for sustaining gender and racial/ethnic equity on campus."

III. Progress toward Goals: Women in STEM

In the College of Arts and Sciences, the Physics Department and the Geography Department have each hired their first female faculty member. The contribution of the ADVANCE program towards the start-up packages was crucial in effecting these hires.

The College of Engineering now has one female department head and one female interim department head. In addition, the College successfully recruited a male department head of Mechanical Engineering who has a strong history of hiring female faculty.

In the College of Agriculture and Home Economics, a female department head (with some STEM faculty, but not herself in a STEM area) left NMSU for career advancement. She has been replaced by an interim department head, also female, also not in a STEM field herself.

The successful movement of STEM women toward promotion and towards tenure has been aided by awards of travel funds and research funds, as well as the mentoring program.

The mentoring program central to the NMSU ADVANCE experience has been crucial in faculty development. It has provided support for faculty moving into administrative positions. The new engineering head and interim head have both participated in the mentoring program, as has the new PI of ADVANCE herself. Having a program that includes women and men and that provides mentoring for all academic career stages is extremely useful.

IV. Progress toward Goals: Institutional Transformation

Below I report on each of the recommendations made by the November 2004 visitors.

A. NMSU ADMINISTRATION: Action on NSF Site visit team recommendations

1. Support the development of a strong assessment program relative to female STEM faculty issues: It was not until late November 2005 that the problem of the ADVANCE analyst's access to raw data was (apparently) effectively arranged. It will take time to find out if the cooperation that was agreed upon in November will actually be consistently forthcoming.

Long-term low levels of cooperation by the Office of Institutional Research and Planning with ADVANCE remain troubling. For example, as of December 21, the ADVANCE PI had not received the data requested and required for her preparation of the year end report to the National Science Foundation, nor that required for the NMSU proposal for a PAID grant (due in January).

An important area where ADVANCE research expertise would have resulted in a different outcome is the campus climate survey. The data set reportedly has a faculty response rate too low to make it meaningful. The inadequacy of the response indicates either a lack of competence or a lack of commitment on the part of the IRP, and surely a lack of collaboration with ADVANCE during the data collection phase. Plans to repeat climate surveys every three years will be irrelevant to assessing the issues affecting STEM women faculty unless this response rate problem is appropriately addressed.

2. Define funding sources dedicated for seed grants, travel awards, bridging funds, senior faculty transition into new projects, and faculty re-entry: There has been little clear public action on this recommendation, beyond recently establishing the framework for (but low levels of funding within) five interdisciplinary "Research Clusters" with faculty from across departments

and colleges. The Clusters are coordinated by the interim Vice President for Research. These groupings are in very early stages of development, and each receive very limited funding from the central administration, using some of the monies available from the IDC (indirect costs). It is possible that these will *in the long run* provide some funding for the kinds of activities listed above (seed grants, travel awards, bridging funds, senior faculty transition into new projects, and faculty re-entry). Currently, these funds are available to a tiny proportion of the STEM faculty.

The President has changed the allocation of funds received as overhead, or indirect costs (IDC) from external grants. From a stable ratio of 25%, and moving toward an announced final proportion of 50%, the central administration is currently taking 35%. This centralization of resources has potential benefits (for example, the support of inter-unit activities, such as that of research clusters; the ability to more rapidly identify funding for time-sensitive opportunities, such as counter-offers to retain faculty, start-up, and target of opportunity and partner employment offers).

However, for this centralization to avoid or minimize distrust and a negative impact on morale, the administration must increase the transparency of decision-making, clarify existing policies, and increase faculty input into the development of emerging policies. There is a lack of transparency on the allocation of funds that is apparently affecting faculty morale, as larger portions of IDC are in the President's hands and removed from the Deans'.

In addition to its symbolic impact, the change in allocations has an immediate impact on faculty, departmental, and College activities: the reduction of Colleges' shares has not been accompanied by an increase in announced cost-sharing by the central administration.

3. Rapidly codify regulations and mechanisms for dual-career appointments into tenure lines: Except for some administrative discussion with UTEP about increasing inter-institutional cooperation for two-career couples, this item has not been addressed. Some work-life balance issues may be addressed by the Promotion and Tenure Task Force (e.g., tenure clock), and/or by the President's Commission on the Status of Women (see IVD, below).

4. Establish a senior academic position within the Provost's office responsible for faculty development: This item has not been addressed. Indeed, there has been much change in the configuration of professional staffing of the Provost's office (see IV, below). Where these responsibilities have been identified, they have been placed in the hands of administrators who are overloaded. Rather than requiring a proliferation of administrative appointments, however, this recommendation might well be complied with through a more effective design of responsibilities and a clearer prioritizing of duties related to faculty diversity.

The need for a single, expert, and authoritative individual to handle faculty development is clear. One administrator estimated that between half a dozen and a dozen individuals are currently handling one or another of the various activities falling within the faculty development rubric. This means that there is no clear "go to" person. Informal reports suggest that Dr. Frehill had long been viewed by many on campus as the most effective person for a variety of faculty development issues.

I am also concerned about how this position would be staffed. I quote from a report on an earlier visit I made to NMSU. These comments merit repetition:

All opportunities in academic administration, even those which are short term and which are limited to internal appointments, must be advertised, and standard search procedures

followed. It is a misuse of the “target of opportunity” concept to fill such a position with a woman and/or racial-ethnic minority candidate. The standard process needs to be followed. The double standard evidenced by the lack of an open search undermines administrative credibility even though the position may be filled by someone outside the traditional pool. Similarly, individuals serving in interim or temporary positions should not be moved into a permanent position without an open search.

Repeatedly I heard from individuals that some members of the campus community perceive the Provost’s office as favoring internal candidates even though they might not be sufficiently qualified for a position. One concern expressed was that such an appointment is made so that a salary can be paid below the level needed to recruit externally.

To the extent that members of the academic community question the qualifications of the Provost’s selections, there is a need for greater openness in searches, with no exceptions. Certainly, questioning the qualifications of appointees from nontraditional groups is often done from ignorance and/or narrow attitudes. However, when members of the University community perceive a double standard in the appointment process, it undercuts their own commitment to participate in fair and open searches (a major commitment of time and energy for participants).

This perception of failing to follow its own dictates also undermines the credibility of the new appointees (and hence their ability to function well).

5. Appoint an ombudsperson: I understand that action on this recommendation has been taken and the Senior Assistant to the President, Christina Chavez Kelley (who has been charged with it) considers it near completion. However, the slow pace of this development is a matter of concern, as it indicates either a low priority to the activity, or the assignment of too many responsibilities to Ms. Chavez Kelley, or both. As it stood during my visit, the plan had not yet been made public. It is therefore unknown which of the aspects of organizational change required to transform NMSU will be in the hands of the ombudsperson. Clearly, the appointment of the ombudsperson should be an open search, as discussed in #4, above.

6. Develop an institutional strategy for eliminating gender harassment and hazing of junior faculty: The President's Commission on the Status of Women has been working on this area, and a recommendation for action is expected in 2006. It will be essential that its recommendations be reviewed and action taken more expeditiously than has been the case thus far.

7. Continue the ADVANCE program’s use of external evaluation for identifying successes as well as challenges that deserve serious attention: This external review follows the recommendation.

B. The NMSU Project Team: Action on NSF Site visit team recommendations

1. Increase coordination with the UTEP ADVANCE program, and with the NMSU Institute for Academic Leadership (ADVANCING Leaders): There has been follow up on each of these. In particular, there has been collaboration at the presidential level, between UTEP and NMSU, in the area of dual career hirings.

The ADVANCING Leaders program, currently administered and funded by ADVANCE, is chaired by Cynda Clary, Assistant to the Provost. In year five, the long-term organizational home

(and financial resources) for this program must be identified. This program should be an attractive one to external donors.

2. Delegate more responsibility to the sub-committees of the Committee on the Status of Women in STEM: Under Dr. Sterling's leadership, and with the rapid approach of the end of the ADVANCE grant, the steering committee itself and the subcommittees are gearing up for the changes in 2006 activities and the planning for post 2006 arrangements.

3. Continue to focus on efforts to ensure transition of projects, in order to institutionalize change within NMSU: The initiation and development of the legislative initiative, for the funding that would ensure transition, has been the major focus of efforts related to this recommendation. During the site visit, it was clear that there is a strong base of committed individuals with a wide range of leadership experience at NMSU and elsewhere, and with a broad experience of the NMSU ADVANCE program. Their commitment and their understanding of the institution promises to make a transformation planning committee (now being established) effective in its work. With the timely cooperation of the administration, a plan for the long term locations of the various initiatives developed by ADVANCE can be created and enacted before the end of NSF funding.

The continued presence of an "ADVANCE" unit is likely to be effective, because of its established visibility. Local knowledge is essential as decisions are made about which activities will remain in an ADVANCE office (e.g., cross-unit mentoring; mentoring training for within-department mentoring programs) and which will be transferred. A smooth transition of many activities will be facilitated by the excellent leadership of Ms. Hunt. The particular configuration ultimately adopted will determine whether the post-NSF ADVANCE should be headed by a faculty member, as well as its reporting relationship in the institution.

4. Collect quantitative retention data for both men and women faculty to determine whether there are gender-based differences in retention rates: These data have been collected as part of a survey of department heads conducted by ADVANCE in late 2005. They will be summarized early in year five.

5. Discontinue the space allocation analysis: This was done.

V. Institutional Context Affecting Progress toward Transformation

A. Leadership of Essential Units

Institutional leadership continues to be in flux. While a number of positions that were previously unstaffed or staffed by interim appointees have been filled, some remain (or are again) unfilled, and others have become unfilled. Notably among the positions pertinent to ADVANCE's functioning:

- There is now an interim Vice President for Research (to whom the ADVANCE PI reports). The position of Director of the Office of Equal Employment Opportunity is currently vacant
- Dean of the College of Agriculture and Home Economics (a search is currently underway; the position is filled by an interim appointee)
- Department Head of the Department of Engineering Technology (Dr. Cooper, a woman, is serving as interim)
- Director of the Office of Institutional Research and Planning (filled by an interim)

In addition to changes in STEM department leadership, the President and the Dean of the College of Engineering started in their present positions within the last two years.

In organizations, it is generally the case that unchanging leadership is linked to the gradual evolution of procedures and rare use of evaluation. Further, the justifications of procedures become lost in the past. As I noted in my last report, some divisions of the university (such as the division of Business and Finance, and until this year the Human Resources office) have had unchanging management for several decades. In addition to the lack of reevaluation that sometimes accompanies the promotion or arrival of new leadership, the seniority of these division heads results in a lack of leverage for newer leaders of less centralized divisions (e.g., academic departments).

B. Reorganization of the administration

The President announced shortly before my visit a reorganization of several administrative divisions. While there are now fewer interim appointees in the upper administration, there was a great deal of uncertainty among almost all those with whom I met about the emerging structure of the university. The lack of transparency in dealings with the business division remains a source of trouble for many on the academic side, and the assignment of additional functions to that division was causing concern.

In addition, the process by which the President reached the decision about the new structure lacked the transparency that might have made the changes more immediately acceptable. There is optimism that the organizational proximity of offices may facilitate some currently bureaucratically burdensome processes. For example, it is hoped that it may ease the proposal preparation process.

C. Institutional Character and Mission

Several individuals mentioned a concern about changes in the institution that would fundamentally change its identity. In particular, people mentioned an expansion in student enrollment. In my previous visits, it was clear that many faculty come to and stay at NMSU at least in part because of its size. It is a non-monetary attraction that must be recognized by the administration when contemplating growth.

If growth must happen, it has potentially a negative impact on the ability to attract and retain faculty. Evaluation of the need for and planning for expansion should be made transparent and include faculty. Proactive planning would also be needed to avoid the negative impact of a changing institutional identity.

Another area of concern among STEM faculty is the likely expansion of programs in nursing and education. Combined with the growing centralization of control over resources, this leads to apprehension about the institution's commitment to maintaining Research I status in STEM fields. Regardless of the accuracy of these concerns, they will have some impact on the ability to attract and retain faculty. There is a serious need for the administration to improve the faculty's sense that it is included in decisions and communications about such institutional developments.

D. Task forces

Several areas of activity are now underway, focused in one way, or another, or in overlapping ways, on issues related to the work of ADVANCE and the transformation of the institution. The

establishment of these groups and their charges indicate potential sources of policy changes and clarification. It is essential that their recommendations be reviewed expeditiously and openly. Much hard work is involved for participants in the efforts, added to existing teaching and research responsibilities. These three arenas include:

- The President's Commission on the Status of Women, which is charged with a number of the issues raised repeatedly in previous visits (such as dealing with problems of incivility among faculty).
- The Faculty Senate's Promotion and Tenure Task Force (formed after the completion of the work of the Provost's Roles and Rewards Task Force); the PI of ADVANCE is co-chair of this Task Force, which has a goal of completing its report and recommendations by the end of the current academic year.
- Preparation for the regional accreditation visit, scheduled for 2007.

E. Continuing problems with the "business side"

In my report (November 2003) I described, in great detail, a variety of problems that people recounted with various offices within the Division of Business and Finance. During my recent visit, I heard that some problems have been solved, others have been addressed somewhat, but not adequately, and others are perceived as intractable. It seems the Division continues to take the perspective that any expenditure should have to be absolutely and undoubtedly appropriate and perfectly documented. An example I provided in my last report experience might still be useful:

...a contract with my signature was required before it could begin to wend its way through the route to approval. At another institution, a facsimile copy of the signed contract might be accepted for the start of the routing, while the original made its way through the mails. A step could be identified beyond which it would go no further, but at least the review could have begun. This would not endanger the inappropriate expenditure of funds in the care of the University.

Perhaps some of the problems are misperceived; that would speak, at least, to the need for improved communication between the academic and business side of the University. But there seems to be room for improvement in this division's handling of faculty research matters, and a continued (perceived or real) image of a business division that is obstructionist interferes with retaining active researchers.

V. RECOMMENDATIONS

A. TO THE NMSU ADMINISTRATION: In accepting the NSF funding, the NMSU administration signed on to the project of transforming the institution. Doing so will require funds, time, and structural changes. The submission of the legislative initiative indicates a continued commitment to the goals of ADVANCE, but more will be needed.

Move equity related issues higher on the agenda.

Resources must be earmarked for the activities that have been essential to ADVANCE's success. Centrally controlled IDC funds should be allocated to support start up packages, seed money, and travel money to conferences for scholarly activity and recruitment purposes.

The administration should fund a full time development specialist to work with ADVANCE for the 2006 year; in addition, the administration must collaborate with ADVANCE to identify back-up funding if legislative initiative is un- or underfunded.

Equity related policies must be addressed faster. Currently they are in the hands of too few, too heavily loaded people, resulting in a bottle neck in the central administration. A slow rate of action implies lack of serious commitment (e.g., to solving campus climate issues; to developing mechanisms for dealing expeditiously with two-career situations during the recruitment process).

Improve retention by addressing sources of low morale

Conduct an open evaluation of the business side of the administration, similar to the task force on promotion and tenure.

Many issues are identified that do NOT require major expenditures: increase transparency of policy making, publish timetables for action by the administration.

Act openly and quickly on recommendations of campus committees and task forces.

B. TO THE ADVANCE PROGRAM: YEAR FIVE

Plan the transition

A core group of active participants in ADVANCE must review all the activities that ADVANCE has come to be associated with - not limited to those in which it has had an official, or formal, role. Assessing the potential sites for these activities and responsibilities will be essential, as will pursuing administrative support for the group's final recommendations.

Follow through with recruited faculty

As the travel and research funding programs will be discontinued in Year Five, the ADVANCE leadership must maintain active connection to the junior faculty brought to NMSU in part through ADVANCE's work. It can provide non-monetary assistance such as the University wide mentoring program, targeted workshops (e.g., on small grants, both internal and external), and establishing and/or supporting intra-department mentoring programs.

Complete the data analyses

All outstanding projects (e.g., salary surveys, climate survey, mentoring program evaluations, start up package impacts, and attrition patterns) must be reviewed, and to the extent that the data permit, final reports need to be written and made available.

Appendix 3

2005 Budget	2005 ANNUAL REPORT	Spent or Committed NSF	Unobligated/ Discrepancy	NMSU Cost-Share
PERSONNEL	Program Director/PI (Frehill): Course Releases	13,132		7,295
	Program Director/PI (Frehill): Summer Salary	3,333		
	Program Director/PI (Sterling) Research Time plus supplemental pay	28,200		
	Program Coordinator/Associate Director	44,418		
	Co-PIs			
	Graduate Assistant(NSF)/Student (NMSU)	16,824		1,735
	Research Analyst	17,375		
	Records Specialist			23,000
	Dual Career - Women's Studies	6,000		
	Fringes	31,088		8,483
TRAVEL	NSF PI Meeting	3,961		
	WEPAN	2,310		
	American Academy of Management	4,000		
	Int'l Conf. for Women in Science and Engineering	2,300		
	Other PI, Program Coordinator and Research Analyst Conference Travel	5,800		
	Travel for STEM Faculty -- Includes Dual career accommodations (not mini-grants)	3,044		
	Visiting Professor Program facilitator	1,931		
	Travel awards for conference/research for STEM female tenure-track faculty	3,525		
	Mini-Grants for Faculty Professional Training	6,705		
PART. SPT.	Stipends: Faculty Development Program Participants	10,614		
CONSULTANT	External Evaluators	3,490		
START-UP FUNDS**	Start-Up Funds for new STEM female tenure-track faculty	200,400		63,861
RESEARCH FUNDS	Research Awards to STEM female tenure-track faculty			
	Undergraduate Research Awards	10,000		
COURSE RELEASE	Course Release Awards to STEM female tenure-track faculty	116,232		
FACULTY DEVELOPMENT	Mentoring Workshops	1,132		
	Promotion & Tenure Workshop Co-Sponsorship	400		
	Department Head Training: Evaluating Teaching, Research and Service (Valian)	1,000		
	Teaching Academy Workshop Leaders*	7,500		
ADVANCING LEADERS	Retreat, Luncheons, Books and Supplies	17,436		
RECRUITMENT	Workshop (Valian)	746		
VISITING PROF	Visiting Professor Program: Fees and Publicity	6,858		
OUTREACH	Women's Studies Luncheon	1,281		
	SWE/E-Week	1,500		
COMMUNICATIONS	Communications/Research	3,546		
TOTAL	Spent or committed for 2005	576,081		104,374
Grand Total	Available funds	532,303	-43,778	
** Start-up funds have been committed for expenditure over a two-year period				

4/11/2006

2006 Budget	2006 Budget for 2005 Annual Report	NSF Budgeted	NMSU Budgeted
PERSONNEL	Program Director/PI (Sterling) Research Time plus supplemental pay	44,000	
	Associate Director	49,730	
	Co-PIs		29,000
	Graduate Assistant(NSF)/Student (NMSU)	18,178	5,000
	Research Analyst	39,963	
	Records Specialist		24,000
	Fringes	38,771	9,366
TRAVEL	NSF PI Meeting	5,000	
	SWE Team Travel	400	
	Other Program Staff Conference Travel	11,200	
	Travel for STEM Faculty -- Includes Dual career accommodations (not mini-grants)	3,000	
	Visiting Professor Program facilitator	5,000	
	Travel awards for conference/research for STEM female tenure-track faculty	9,113	
	Mini-Grants for Faculty Professional Training	10,000	
PART. SPT.	Stipends: Faculty Development Program Participants	10,000	
CONSULTANT	External Evaluators	0	
START-UP FUNDS	Start-Up Funds for new STEM female tenure-track faculty**	100,000	30,000
RESEARCH FUNDS	Research Awards for STEM Female Tenure-Track Faculty (non-travel/course release)	35,000	
COURSE RELEASE	Course Release Awards to STEM female tenure-track faculty	35,000	
FACULTY DEVELOPMENT	Mentoring Workshops	2,200	
	Promotion & Tenure Workshop Co-Sponsorship	500	
	Department Head Training: Evaluating Teaching, Research and Service	1000	
	Teaching Academy Workshop Leaders*	7,000	
ADVANCING LEADERS	Retreat, Luncheons, Books and Supplies	17,500	
RECRUITMENT	Workshop	900	
VISITING PROF	Visiting Professor Program: Fees and Publicity	16,000	
OUTREACH	Outreach Event -- Women's Studies Luncheon	1,000	
COMMUNICATIONS	Communications	5,000	
	Website	1,000	
TOTAL		461,454	97,366
Grand Total	**Remaining available funds: 461,454	461,454	97,366

* Start-up funds have been committed for expenditure over a one-year period

**Budget for 2006 = 491,315

Total over-expenditure from previous years = 29,861 (see below)

Remaining available funds = 461,454

2002 47,532 unobligated

2003 17,400 unobligated

2004 -50,914 overspent

2005 -43,879 overspent

-29,861 overspent



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