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SECTION I. EXECUTIVE SUMMARY

Over our four years, ISU ADVANCE has become Iowa State’s most prominent vehicle to recruit, retain, and advance women and women of color in STEM faculty positions. We are known for a well-managed network, innovative research, and an integrated approach to change. We work within departments using a Collaborative Transformation approach to improve the work environment for all faculty members. Our program identifies cultures, practices, and structures that enhance or hinder the careers of ISU faculty, and works with faculty and administrators to transform university policies, practices, and academic culture in pursuit of a diverse and vibrant faculty in STEM disciplines.

The ISU ADVANCE Program’s Comprehensive Institutional Intervention Strategy has four primary goals:

1. Overcome known barriers to women’s advancement across ISU STEM fields, focusing on departmental transparency, isolation, mentoring, and career flexibility.
2. Overcome department-specific barriers to women’s advancement in STEM.
3. Increase overall participation/advancement of women faculty in senior and leadership ranks.
4. Institutionalize positive changes at the university level.

As stated in our original grant proposal, the ISU ADVANCE Program involves both “bottom up” and “top down” approaches. Our “bottom up” activities include department interventions that are part of the Collaborative Transformation project. We also engage in “top down” activities that address policies and practices at the college and university levels. We seek to illuminate both subtle and overt impediments to equity, and to design strategies to dissolve
impediments, thus transforming Iowa State University into an institution that facilitates retention and advancement of women and all underrepresented minorities.

During Year 4, we identified the theme of ADVANCE-ing Faculty: Pathways to Promotion and Leadership. We focused on this theme as we initiated new activities and continued many of those begun in Years 1, 2, and 3.

Important accomplishments in Year 4 include:

Program organization and evaluation
The ADVANCE Council expanded to include representatives from partner programs as well as experts in the recruitment and retention of under-represented minorities to STEM. The four Council meetings served as effective forums to discuss key issues of sustaining the program, defining ADVANCE work in the context of severe budget cuts, and recruiting under-represented minority faculty.

We finalized an evaluation plan and logic model in partnership with an evaluation and assessment expert in the Office of the Executive Vice President and Provost.

We planned and executed a productive External Site Visit and refined our priorities and initiatives in response to the feedback.

Addressing barriers in departments through Collaborative Transformation
We initiated the Collaborative Transformation process in round 3 departments (a year ahead of schedule). We brought on new ADVANCE Professors in round 1 departments, maintaining continuity in department-level efforts.

We produced a second synthesis report on Collaborative Transformation, summarizing findings from both round 1 and round 2 departments.

ADVANCE equity advisors worked with key department chairs to present a forum on strategies to improve department climate. Attendees included the University President, Executive Vice President and Provost, and Deans as well as chairs.

Addressing barriers at the college and university levels:
Transparency
Year 4 administrative fellow gathered data on promotion from associate to full professor and offered a forum to faculty and administrators to discuss data and possible interventions to ensure timely promotion.

Isolation
The ADVANCE lecture series demonstrates the easy connection between eminent scholars and transformation of the academy.

The ADVANCE Scholars program initiated peer-mentoring meetings for the scholars.

Mentoring
The ADVANCE Scholars program has matched four new under-represented minority faculty with external Eminent Scholars. With new support from the Executive Vice President and Provost to support a graduate student, we brought Dr. Caroline Turner to campus to speak about mentoring for under-represented faculty.
**Faculty Flexibility**

We posted on-line ISU Policies and Guidelines for Flexible Faculty Careers: Resources for Chairs & Deans.

Year 3 Administrative fellow held two events to introduce chairs and faculty to the document.

**Institutionalize positive change**

We created a brochure to apply the lessons of ADVANCE department-level transformation to the broader issues of budget cuts. “Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program” has been well received by faculty and administrators.

The University was awarded an I^3 grant (Innovation through Institutional Integration) from the NSF (PI and co-PIs included ADVANCE personnel). Our I3 initiative, “Strengthening the Professoriate at ISU,” will draw on some of the strengths of ISU ADVANCE (equity advisors, a central council, central location in the Executive Vice President and Provost’s Office) and help us in designing ways to sustain ISU ADVANCE.

We convened a “Taskforce on ISU Department Leadership” to enhance the success and diversity of department chairs at ISU.

As we enter the fifth year of our award, we see increased institutional reliance on ISU ADVANCE in issues of faculty recruitment, advancement, and retention for STEM faculty. With focused efforts in Year 5, we will design a plan to sustain the program into the future by building on these successes.

**SECTION II. ISU ADVANCE MANAGEMENT AND INFRASTRUCTURE**

**A. PROGRAM ORGANIZATION—ORIGINAL DESIGN AND CHANGES THAT STRENGTHEN THE PROGRAM**

The ISU ADVANCE Program draws strength from a multi-level approach to achieving change through Comprehensive Institutional Intervention. In the fourth year, the influence and activities of the ISU ADVANCE Program have continued to expand on campus through our partnerships at the college and department levels.

The original proposal to NSF specified a management plan that included:

- **ADVANCE Co-PI Leadership Team** (also referred to as the Co-PI Team and ADVANCE Team) of PI, co-PIs, Senior Personnel, graduate students and program assistant
- Activities at three levels of academic structure
  - **Executive Vice President and Provost Office** — ADVANCE Council (Associate Provost, Dean/Associate Dean from colleges, ADVANCE Program Director, Program Assistant and ADVANCE Team)
  - **STEM Colleges** — Equity Advisor, College Coordinating Council with Dean/Associate Dean, ADVANCE Professors, focal Department Chairs, ADVANCE Program Director
  - **Focal Departments** — ADVANCE team led by ADVANCE Professor, with chair, three additional departmental faculty and college Equity Advisor. In spring 2009, ADVANCE Professors were selected in a third round of three new focal departments, which began Collaborative Transformation activities in fall 2009.
- **External Advisors**
- **Diversity Facilitator**
In Years 2 and 3 we added three components to the management plan that have continued to enhance our program through Year 4. These additional components are.

- **Steering Committee** — Added in Year 2, this committee is composed of the PI, Executive Director, Research Director, and one representative from the group of Equity Advisors and ADVANCE Professors. The Steering Committee provides oversight to the program, approves requests for budgetary allocations, and meets twice a month throughout the academic year. In Year 4 the Steering Committee continued as the primary decision-making group. This structure has been very successful for the ADVANCE Program.

- **Research Director** — Based on formative evaluation during our June 2007 planning retreat and the recommendations of the External Evaluators in January 2008, we created the position of Research Director to recognize the leadership and commitment of the coordinator of the Research Team. Co-PI Dr. Sharon Bird was the Research Director in Years 2, 3, and 4.

- **Council** — The ADVANCE Council continues to be a valuable group for communicating about activities for those involved in the various aspects of the program, planning and brainstorming, and for communicating with the offices of the Deans of our five STEM colleges. Members of the Council include the co-PI Team, Equity Advisors, ADVANCE Professors, Associate Deans from the five STEM colleges, Faculty Fellows, graduate students and post-docs, program assistant, and partners in various programs on campus that have missions similar to ISU ADVANCE. Our program has continued to develop in Year 4 with the expansion of the Council. In Year 3 we added Associate Deans from the Colleges of Human Sciences and Veterinary Medicine, which have STEM faculty who benefit from the campus-wide programs we offer. There were several changes to the ADVANCE Council in Year 4, which are highlighted below:

  - **Council – Non-focal college and other ISU partners:** In Year 4 we invited representatives from the Program for Women in Science and Engineering (Dr. Karen Zunkel), the Graduate College (Dr. Adin Mann, Associate Dean and coordinator of the AGEP program for graduate education for underrepresented minorities), Science Bound (Dr. Connie Hargrave), and the Center for American Intercultural Studies (Dr. Eugenio Matibag).

  - **Council – Equity Advisors and ADVANCE Professor (Round one):** In Year 4, the new Equity Advisors and ADVANCE Professors for Rounds one and two focal departments, who were appointed during Year 3, continued their participation in the program.

  - **Council – ADVANCE Professor (Round three):** In Year 4 we added three new focal departments to the Collaborative Transformation project. ADVANCE Professors were selected for those departments and they became active participants in the program in Year 4. The new members are Dr. Alan Goldman (Physics and Astronomy), Dr. Adam Bogdanove (Plant Pathology), and Dr. Charles Glatz (Chemical and Biological Engineering).

- **Equity Advisor/ADVANCE Professor Working Group** — The Equity Advisor/Advance Professor (EA/AP) Working Group, which was formed in Year 2, continued to meet regularly during Year 4. Coordinated by co-PI Dr. Diane Debinski, it is composed of college Equity Advisors (Year 4: Dr. Lisa Larson, Dr. Kristen Constant, and Dr. Janette Thompson), ADVANCE Professors from focal departments in all three rounds of the Collaborative Transformation project, Dr. Debinski, who represents the ADVANCE co-PI team, and Dr. Bonnie Bowen, who
represents the Steering Committee. Dr. Sharon Bird, the Research Director, Dr. Carla Fehr and Dr. Lisa Larson also attend as the researchers who are working closely with the ADVANCE Professors in the focal departments. Other ADVANCE team leaders attend as necessary, depending upon current activities. The Equity Advisors and ADVANCE Professors meet as a group every two weeks, and communicate the notes from their meeting to the ADVANCE Co-PI Leadership team. The goal of this group is to promote synergistic efforts among departments, colleges, and the university community at large. This working group has been very productive and very successful in providing communication with the Program and throughout the campus.

- **Internal Advisory Board** — This group is composed of the Executive Vice President and Provost and the Deans of the five colleges with STEM departments. The members of the Steering Committee met with the Internal Advisory Board twice in Year 4 and the Board provided feedback on ADVANCE activities, including research, programming, data collection and dissemination, training, communications and networking. This group of high level administrators has helped us adjust our resources and prepare to sustain elements of the ADVANCE program when NSF funding ends. Engagement of the Deans and Provost is especially important during these times of economic challenge at the university.

### B. PARTICIPANTS

**PI and co-PIs**

**Susan Carlson**  
Dr. Susan Carlson, PI on the ADVANCE grant, has kept the program visible in central administration, particularly with the President, the Executive Vice President and Provost (EVPP), the Deans, and academic vice presidents. She made it a priority to work with the Internal Advisory Board (the EVPP and the five STEM deans) in Year 4 to ensure continuing support for the program. She continues to work closely with the Executive Director on program management, including the development of new partnerships on campus. She supervised the fourth ADVANCE Administrative fellow, who focused on pathways to advancement (associate to full professor). Throughout the year, she has worked with the co-PIs and others to prioritize dissemination and the recruitment and retention of under-represented minorities. She is chairing a university committee to enhance the success and diversity of department chairs at ISU and leads ADVANCE collaborations on policy development, including a parental leave draft policy. Dr. Carlson is a member of the ADVANCE Steering Committee, the ADVANCE Council, the Internal Advisory Board, and co-PI Team. Dr. Carlson is on advisory boards for ADVANCE programs at North Dakota State University and the University of New Hampshire and made a presentation about ISU ADVANCE at the Big 12 ADVANCE workshop in April 2010.

**Sharon Bird**  
Dr. Sharon Bird, is a co-PI, ISU ADVANCE Research Director, and member of the ADVANCE Steering Committee, Council, and co-PI Team. During Year 4, Dr. Bird’s efforts include: guiding and presenting results from the ISU Collaborative Transformation (CT) project; updating/modifying and further developing protocols and IRBs for ISU Collaborative Transformation (CT) project; coordinating and participating in the collection and analysis of Round 3 focal department interview and focus group data; working with external focus group/interview facilitator to arrange qualitative data collection; working with on-campus research institute (RISE) to
Dr. Bonnie Bowen is a co-PI and the program Executive Director. Dr. Bowen has monitored all aspects of the project and has devoted time wherever it is needed to assure that we are meeting the requirements of NSF as well as the timeline that our team developed. In Year 3 she was co-chair of the committee that planned the national conference on flexible careers in STEM, which occurred in Ames October 10-11, 2008. She has supervised a graduate student who worked on the conference. Dr. Bowen is responsible for financial and personnel management, as well as communications. In Year 4 she worked extensively with Dr. Kevin Saunders to prepare the Logic Model and Evaluation Plan for the ISU ADVANCE Program and to select External Evaluators who will work with the program in Year 5. She also coordinated the NSF Site Visit preparations and the responses from the ISU ADVANCE Program to the Site Visit Team Report. She manages the ADVANCE office and supervises the program assistant. As Executive Director she has provided a supportive structure for the team, the Council, our meetings, and our partners. She meets regularly with diversity partners on campus and is a co-PI in the recently funded I²³ (Innovation through Institutional Integration) award from NSF. Additionally, she has participated with and supported other ADVANCE Council members in presentations to other non-focal departments. Dr. Bowen is a member of the ADVANCE Steering Committee, the ADVANCE Council, and co-PI Team. She meets with the Equity Advisor/ADVANCE Professor group (twice per month) and with the Internal Advisory Board (twice per year). She also participated in the Site Visit Planning Committee. She presented a poster about ISU ADVANCE work at the annual meeting of the Society for the Study of Evolution (2008), the American Ornithologists’ Union (August 2009), and she co-chaired a symposium on Women in Ornithology at the COS/AOU/SCO conference (February 2010).

Dr. Diane Debinski is a co-PI and served as a leader in college, department, and program development areas. Her primary roles were: 1) leading the Equity
Advisor/ADVANCE Professor Working Group meetings (twice per month) and communicating the results of these efforts to the co-PI Team, 2) facilitating the Collaborative Transformation efforts at the focal department and college level, and 3) serving as an active member of the co-PI team (assisting with the management, implementation, dissemination, reporting and evaluation of the program). She led an effort in 2010 with the Equity Advisor/ADVANCE Professor Working Group and ADVANCE Co-PI Team to produce a document for ISU leaders entitled “Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program.” She co-authored a poster about ISU ADVANCE work at the annual meeting of the Society for the Study of Evolution (2008), the American Ornithologists’ Union (August 2009), and she is co-chairing an Organized Poster Session with Bonnie Bowen for an upcoming Ecological Society of America conference (August 2010) entitled “Improving Recruitment and Retention of Women Faculty in Ecology: A Focus on NSF-Funded ADVANCE Programs." Dr. Debinski is a member of the ADVANCE Council and co-PI Team.

Carla Fehr
Dr. Carla Fehr is a co-PI and member of the co-PI Team and the ADVANCE Council. She conducts diversity training for new ADVANCE Council members each year. In Years 3 & 4, she was a member of the ADVANCE Research Team, where she works with a focal department and synthesized data from focus group interviews. She also participated on the NSF Site Visit Planning Committee. Dr. Fehr published a book chapter, "Are Smart Men Smarter than Smart Women," on the impact of studies of gender and intelligence on women in science. In Year 3 she presented findings from ADVANCE research at the Feminist Epistemology, Metaphysics, Methodologies and Science Studies Association 2009 Meeting. In Year 4 she presented findings from ADVANCE at the University of Waterloo, Ontario, Canada (February 2010), the University of North Carolina (March 2010), the University of Indiana – Bloomington (March 2010), the Iowa State PWISE Leadership Conference (March 2010) and at Middlebury College (April 2010).

Senior Personnel – Serving on the ADVANCE Team

Sandra Gahn
Dr. Sandra Gahn has been on the ADVANCE Team since August 2006 and is a co-PI in the ISU system from May 2007 forward. She is the Associate Director of the Iowa State University Office of Institutional Research. She develops and updates the database on faculty that has been used to produce the indicator reporting tables. She is also authoring reports, publications and presentations using ADVANCE data. She is a member of the Council, co-PI Team and Research Team and is involved in collecting and analyzing salary, space, start-up costs and survey data. She gave a presentation with graduate research assistant Jason Pontius in March of 2009 about the results of the AAUDE Faculty Satisfaction Survey at ISU. In Year 3 she presented findings from ADVANCE research at the Women in Educational Leadership Conference (Oct 2008), Mid-American Association for Institutional Research Conference (Nov 2008), our Conference on Faculty Flexibility (Oct 2008), and the Association for Institutional Research Annual Forum (May 2009). In Year 4 she presented findings from ADVANCE research at the Way-Up Conference (Nov 2009).
Florence Hamrick
Dr. Florence Hamrick is a co-PI in the ISU system and joined the co-PI Team and ADVANCE Council in September 2006. In Years 1 and 2 Dr. Hamrick was a member of the Research Team and worked with focal departments engaged in the Collaborative Transformation project. Dr. Hamrick became the leader of the ISU ADVANCE Scholar Program (external mentoring program) in April 2008. Since that time, she has updated the Scholar Program informational materials and met with academic deans and department chairs about the Program. She maintains contact with ISU faculty members who are current or prospective ADVANCE Scholars, and she works with the ADVANCE Office and individual ADVANCE Scholars to facilitate scheduling and travel arrangements. In Year 4 she attended the NSF Joint Annual Meeting (June 2009) on behalf of ISU ADVANCE, and she presented findings from ADVANCE-related research at the Association for Institutional Research annual forum (June 2009) and the Association for the Study of Higher Education conference (November 2009).

Frankie Santos Laanan
During Year 1 (2006-07) Dr. Frankie Santos Laanan supervised the development and launch of the ISU ADVANCE Web site and organized the External Mentoring program in his capacity as an Administrative Intern in the Office of the Provost. He was a member of the ISU ADVANCE co-PI Team and ADVANCE Council. During the summer of 2007, Dr. Santos Laanan developed a handbook for mentors and mentees and continued to lay the groundwork for the External Mentoring program. In Year 2 (2007-08), he took a leave of absence from Iowa State during most of the academic year, so he did not continue his leadership of the mentoring program. In May 2008, he returned to his academic duties, but resigned from the ADVANCE Program.

Bonita Glatz
Dr. Bonita Glatz, Emerita Professor of Food Science and Human Nutrition, was the Provost’s Administrative Fellow January – May 2008 and a member of the ADVANCE Council during Year 2. She compiled information on faculty recruitment and retention and prepared resources that are posted on our Web site and on our internal electronic resource repository, WebCT. She gave presentations to the Council and the 2008 Chairs workshop. She also designed a resource CD for departments, and gave a workshop to the campus to introduce it. She was supported with funds from the Provost’s office.

Mary Harris
Dr. Mary Harris, Adjunct Assistant Professor of Natural Resource Ecology & Management and Entomology, was the Provost’s Administrative Fellow September 2008 – May 2009 and a member of the ADVANCE Council during Year 3. She compiled information on work-life balance and faculty flexibility. In November she conducted two workshops, one to the Chairs and Deans and one to the campus community about flexible career policies for ISU faculty. She created a handbook called “ISU Policies and Guidelines for Flexible Faculty Careers: Resources for Chairs & Deans,” which is now available on the Provost office and ISU ADVANCE websites. She was supported with funds from the Provost’s office.

Annette O’Connor
Dr. Annette O’Connor, Associate Professor of Veterinary Diagnostic and Production Animal Medicine, was the Provost’s Administrative Fellow August 2009 – May 2010
and a member of the ADVANCE Council during Year 4. She compiled information on the path to promotion for faculty members, concentrating on the transition from associate to full professor. In March she presented a workshop to the campus on her findings. She was supported with funds from the Provost's office.

Jill Bystydzienki
Dr. Jill Bystydzienki was a co-PI in Year 1 and resigned from Iowa State in June 2007. In Year 2 & 3 she was not on the Leadership Team, but she maintained her affiliation with our program by serving as an external member of the Conference Organizing Committee.

Equity Advisors in Focal Colleges

Lisa Larson
Dr. Lisa Larson, Equity Advisor in the College of Liberal Arts and Sciences and Professor of Psychology is responsible for leading the College of Liberal Arts and Sciences’ ADVANCE effort. Dr. Larson began serving as Equity Advisor in March 2007. Dr. Larson works with college leadership to plan, coordinate, and implement ADVANCE efforts in the college. She partnered with Dr. Thompson to convene the CALS/LAS Leadership Council, which met twice during each of Years 3 and 4. She was a member of the ADVANCE Council and participated in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. In addition, Dr. Larson has collected data to clearly define problem areas and strength areas in the college. She has worked with the Office of Equal Opportunity and Diversity to improve access to good data related to the faculty search process. She is also working with LAS deans to integrate LAS and ADVANCE search materials. Moreover, Dr. Larson has presented to the Chair Council and to the Dean’s Leadership Team to share with them information and suggest strategies. Dr. Larson has also served a leadership role in supporting ADVANCE efforts on campus. For example, she has given presentations and participated in the following events: the November 2007 ADVANCE Networking Event “Making a Career in STEM: Three Women’s Stories,” the April 1, 2008 Collaborative Transformation Synthesis Workshop, the December 2008 campus workshop on faculty search resources, and the April 2009 Chair’s workshop on departmental transformation. She has also led a STEM Advisory group meeting of senior women in STEM disciplines and she is a member of the LAS Diversity Council and the LAS Promotion and Tenure Committee. Additionally, she has participated with other ADVANCE Council members in presentations to other non-focal departments. Dr. Larson has developed and implemented the ADVANCE lectureship program committee, whereby ADVANCE awards two $1,000 awards and ten $300 awards to departments across campus to bring in female speakers and minority speakers. In Years 3 and 4, she participated in the Collaborative Transformation project, where she worked with focal departments in Rounds 2 and 3, and synthesized data from focus group interviews. She is the author of departmental reports and a synthesis report from the Collaborative Transformation project.

Janette Thompson
Dr. Janette Thompson, Equity Advisor in the College of Agriculture and Life Sciences and Associate Professor of Natural Resource Ecology & Management, is responsible for leading the College of Agriculture and Life Sciences’ ADVANCE effort. Dr. Thompson began serving as Equity Advisor in January 2007. She convened the College of Agriculture Leadership Council which met twice in 2007, three times in
2008, and then partnered with Dr. Larson to convene the CALS/LAS Leadership Council, which met twice during 2009. She is a member of the ADVANCE Council and participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. Dr. Thompson is a member of the ADVANCE Steering Committee (meets biweekly) and meets with the Internal Advisory Board (twice yearly). Dr. Thompson works with college leadership to develop programs, policies, and distribute information to improve working environments, serves as a liaison between the College of Agriculture and Life Sciences and ADVANCE, leads and provides support for ADVANCE events on campus, and encourages participation by others in ADVANCE events. She organized and hosted a campus-wide workshop on unintentional bias in October 2007. She was a discussion leader at the campus workshop on faculty search resources in December 2008. She has conducted several informal lunchtime discussions with female faculty members in her college. She also planned the April 2009 ADVANCE Chairs workshop about promotion and tenure. She has developed two Reader’s Theater scripts based on case studies about unintentional bias. Additionally, she has participated with other ADVANCE Council members in presentations for the campus community and to non-focal departments.

Kristen Constant
Dr. Kristen Constant, past ADVANCE Professor, current College of Engineering Equity Advisor and Associate Professor of Materials Science & Engineering, has been responsible for coordinating ADVANCE activities in the College of Engineering. She is a member of the ADVANCE Council, College of Engineering Leadership Council, and she participated in the Equity Advisor/ADVANCE Professor group which meets twice monthly. Dr. Constant began serving as ADVANCE Professor in January 2007. Dr. Constant has also participated in several presentations to the university community on the progress of ISU ADVANCE. She continues to have bimonthly conversations with the Dean of Engineering on topics related to ADVANCE, and serves on the college diversity committee. Dr. Constant helped prepare and deliver presentations to three department chair search committees in the College of Engineering about broadening the search and best practices and served on one of these committees. She also has helped coordinate informal lunch discussions with College of Engineering women faculty. Dr. Constant also helped plan and present the April 2010 Chairs luncheon with the President and Provost which included a panel of ADVANCE department chairs discussing lessons learned. Dr. Constant has given presentations about ISU ADVANCE activities at the conference of the American Society for Engineering Education (ASEE). She has written a manuscript on ADVANCE activities in the COE, which has been submitted to and accepted by the Proceedings of the ASEE.

ADVANCE Professors in Focal Departments

Fredric Janzen
Dr. Fredric Janzen, was the ADVANCE Professor and Professor of Ecology, Evolution & Organismal Biology (EEOB) during Years 1-3. Dr. Janzen completed his 2-year term and resigned from ADVANCE in December 2008. As ADVANCE Professor, he was responsible for coordinating ADVANCE activities in his department. He was a member of the ADVANCE Council, and the CALS/LAS Leadership Council. He participated in the Equity Advisor/ADVANCE Professor group and was a member of the Reader's Theater production on unintentional bias. In the Collaborative Transformation process, Dr. Janzen worked with the Research
Team to edit the EEOB focus group report, he facilitated discussions of the report within EEOB, and he worked with the department chair and the ADVANCE team to develop and implement strategies to address issues that were illuminated in the EEOB focus groups. He was a panel speaker during the Collaborative Transformation workshop held in the spring of 2009.

James Raich
Dr. James Raich, ADVANCE Professor and Associate Professor of Ecology, Evolution & Organismal Biology (EEOB), is responsible for coordinating ADVANCE activities in his department. He joined the ADVANCE Program in January 2009 when Dr. Janzen completed his 2-year term. He is a member of the Equity Advisor/ADVANCE Professor group. In the Collaborative Transformation process, Dr. Raich is working with the Research Team and the ADVANCE co-PI Team to develop and implement strategies to address issues that were illuminated in the EEOB focus groups. He also was involved in the April 2009 ADVANCE Chairs workshop about promotion and tenure and the March 2010 Workshop on Pathways to Advancement: Associate to Full Professor.

Jo Anne Powell-Coffman
Dr. Jo Anne Powell-Coffman, Associate Professor, was an ADVANCE Professor in the department of Genetics, Development & Cell Biology from January 2007 through May 2009. She was responsible for coordinating ADVANCE activities in her department. She was a member of the Equity Advisor/ADVANCE Professor group, which meets twice monthly. Dr. Powell-Coffman worked toward communicating the needs of GDCB and STEM colleagues to the ADVANCE program. In the Collaborative Transformation process, Dr. Powell-Coffman worked with the research team to edit the GDCB focus group report, facilitated discussions of the report within GDCB, and worked with the department chair and the ADVANCE team to develop and implement strategies to address issues that were illuminated in the GDCB focus groups. She was a panel speaker during the Collaborative Transformation workshop held in the spring of 2009. Dr. Powell-Coffman also presented ISU ADVANCE posters at disciplinary conferences (developmental biology) and participated in presentations to non-focal departments. Even though she was no longer an official member of the ADVANCE Program, she participated in two activities in Year 4. In November 2009 she spoke at Boston University in their Women of ADVANCE Colloquium series. She gave a scientific presentation and also participated in a lunch with Women in Biology. In April 2010 Dr. Powell-Coffman participated in the Big 12 ADVANCE Workshop on Diversity.

Steven Rodermel
Dr. Steven Rodermel is a Professor in the Department of Genetics Development & Cell Biology. He became a representative of Genetics Development & Cell Biology, a first round focal department, on the ADVANCE Council in the fall of 2009 (Year 4) He replaces Dr. Jo Anne Powell-Coffman in this position. He is a member of the ADVANCE Council and the CALS/LAS Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. In the Collaborative Transformation process, Dr. Rodermel is working with the Research Team and the ADVANCE co-PI Team to develop and implement strategies to address issues that were illuminated in the GDCB focus groups.
Ralph Napolitano
Dr. Ralph Napolitano is an Associate Professor in the Department of Materials Science & Engineering. He became a representative of Materials Science & Engineering, a first round focal department, on the ADVANCE Council in the spring of 2009 (Year 3). He replaces Dr. Kristen Constant in this position. He is a member of the ADVANCE Council and the Engineering Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. In the Collaborative Transformation process, Dr. Napolitano is working with the Research Team and the ADVANCE co-PI Team to develop and implement strategies to address issues that were illuminated in the MSE focus groups.

Mark Gordon
Dr. Mark Gordon is a Distinguished Professor and the ADVANCE Professor for Chemistry. The Department of Chemistry became a round 2 focal department in the fall of 2008 (Year 3). He is a member of the ADVANCE Council and the CALS/LAS Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. In the Collaborative Transformation process, Dr. Gordon is working with the Research Team and his department to implement strategies to address issues that were illuminated in the Chemistry focus groups.

Shauna Hallmark
Dr. Shauna Hallmark is an Associate Professor and the ADVANCE Professor of Civil, Construction & Environmental Engineering (CCCE). CCCE became a round 2 focal department in the fall of 2008 (Year 3). She is a member of the ADVANCE Council and the College of Engineering Leadership Council, and she participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. She also has helped coordinate breakfast and lunch informal discussions with College of Engineering women faculty. She participated in presentations to non-focal departments in the College of Engineering. Dr. Hallmark also was involved in the 2009 ADVANCE Chairs workshop about promotion and tenure. In the Collaborative Transformation process, Dr. Gordon is working with the Research Team and his department to implement strategies to address issues that were illuminated in the CCEE focus groups.

Elisabeth Lonergan
Dr. Elisabeth Lonergan is a Professor and the ADVANCE Professor of Animal Science. Animal Science became a round 2 focal department in fall 2008 (Year 3). She is a member of the ADVANCE Council and the CALS/LAS Leadership Council, and she participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly. In Year 3, she participated in presentations to non-focal departments. In the Collaborative Transformation process, Dr. Gordon is working with the Research Team and his department to implement strategies to address issues that were illuminated in the Animal Science focus groups.

Adam Bogdanove
Dr. Adam Bogdanove is an Associate Professor in the Department of Plant Pathology. He became a representative of Plant Pathology, a third round focal department, on the ADVANCE Council in the spring of 2009 (Year 3). He became an ADVANCE Professor in the Fall of 2009 (Year 4). He is a member of the ADVANCE Council and the CALS/LAS Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly.
Alan Goldman
Dr. Alan Goldman is a Distinguished Professor in the Department of Physics & Astronomy. He became an ADVANCE Professor for Physics & Astronomy, a third round focal department, in the spring of 2010 (Year 4). He is a member of the ADVANCE Council and the CALS/LAS Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly.

Charles Glatz
Dr. Charles Glatz, Professor of Chemical & Biological Engineering, began serving as Equity Advisor in mid-March 2007. He was responsible for leading the College of Engineering’s ADVANCE effort and convened the College of Engineering Council. He was a member of the ADVANCE Council and participated in the Equity Advisor/ADVANCE Professor group which meets twice monthly. Dr. Glatz gave a talk on unconscious biases and search committee practices to Search Committee Chairs in the College of Engineering, compiled materials on attracting a diverse candidate pool and interviewing practices for those Search Committees, and organized a workshop for Deans and Chairs on overcoming cognitive errors. He also co-hosted an engineering women’s lunchtime discussion with ADVANCE Professors in his college. He helped prepare materials for a campus workshop on faculty search resources in December 2008. Dr. Glatz resigned from the ADVANCE Council in December 2008. In August of 2009, he became the ADVANCE Professor for his department, which is a round 3 focal department. He is again a member of the ADVANCE Council and the Engineering Leadership Council, and he participates in the Equity Advisor/ADVANCE Professor group, which meets twice monthly.

Deans/Associate Deans/Provost

Wendy Wintersteen
Dr. Wendy Wintersteen is the Dean of the College of Agriculture & Life Sciences. She is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.

John Thomson
Dr. John Thomson is the Dean of the College of Veterinary Medicine. He is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.

Pamela White
Dr. Pamela White is the Dean of the College of Human Sciences. She is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.

Michael Whiteford
Dr. Michael Whiteford is the Dean of the College of Liberal Arts & Sciences. He is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.

Jonathan Wickert
Dr. Jonathan Wickert became the Dean of the College of Engineering in July of 2009. He is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.
James Bernard
Dr. James Bernard was the Interim Dean of the College of Engineering. He was a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester. Dr. Bernard stepped down as Interim Dean in June of 2009.

Mark Kushner
Years 1 & 2: Dr. Mark Kushner, Dean of the College of Engineering, was a member of the ADVANCE Council. He worked with the Equity Advisor (Glatz) and ADVANCE Professor in MSE (Constant) to coordinate ADVANCE activities in the college. He attended Council meetings and participated in the Chairs Workshop that was sponsored by the College of Engineering and coordinated by COE Equity Advisor Charles Glatz. He resigned his position at Iowa State in September 2008.

Diane Rover
Dr. Diane Rover, Associate Dean of the College of Engineering, joined the ADVANCE Council in Year 2. She attends Council meetings and coordinates activities in the College of Engineering with Equity Advisor Kristen Constant. She also participates in the College of Engineering Leadership Council.

David Oliver
Dr. David Oliver, Associate Dean of the College of Liberal Arts & Sciences, is a member of the ADVANCE Council. He works with the Equity Advisor (Larson) and ADVANCE Professors for EEOB (Raich) and GDCB (Rodermel) to coordinate ADVANCE activities in the college. He attends Council meetings and contributes his perspective on ways ADVANCE could be implemented at Iowa State. He attended the Big XII Workshop at Oklahoma in January 2008, and was part of a workshop at ISU, sharing insights on what was learned. He also attends meetings of the CALS/LAS Leadership Council and participated in the 2009 Chairs workshop and the NSF Site Visit Planning Committee.

Joe Colletti
Dr. Joe Colletti, Senior Associate Dean of the College of Agriculture and Life Sciences (CALS) is a member of the ADVANCE Council. He works with the Equity Advisor (Thompson) and ADVANCE Professor in GDCB (Rodermel) to coordinate ADVANCE activities in the college. He attends meetings of the ADVANCE Council and the CALS/LAS Leadership Council and contributes his perspective on ways ADVANCE could be implemented at Iowa State. He also was involved in the planning of the 2009 ADVANCE Chairs workshop about promotion and tenure.

Lisa K. Nolan
Dr. Lisa K. Nolan is the Associate Dean for Academic and Student Affairs in the College of Veterinary Medicine. She became a representative on the ADVANCE Council in the spring of 2009 (Year 3).

Carla Peterson
Dr. Carla Peterson is the Associate Dean for Research and Graduate Education in the College of Human Sciences. She became a representative on the ADVANCE Council in the spring of 2009 (Year 3).
Elizabeth Hoffman
Dr. Elizabeth Hoffman is the Executive Vice President and Provost of Iowa State University. She is a member of the ADVANCE Internal Advisory Board, which meets with the ADVANCE Steering Committee each semester.

Other Council Partners

Connie Hargrave
Dr. Connie Hargrave is an Associate Professor in Curriculum and Instructional Technology and the Director of Science Bound. Science Bound seeks to increase the numbers of ethnically diverse Iowans who pursue degrees in the STEM fields. She joined the ISU ADVANCE Council in the Spring of 2010 as a Council partner.

Adin Mann
Dr. Adin Mann is an Associate Professor in Mechanical Engineering and the Assistant Dean of the Graduate College. In this position he coordinates the recruitment and retention of minority graduate students along with collaboration of related programs that include AGEP, McNair, Advance, and academic college programs. He joined the ISU ADVANCE Council in the Fall of 2009 as a Council partner.

Eugenio Matibag
Dr. Eugenio Matibag is a Professor of World Languages & Cultures, and the Director of the Center for American Intercultural Studies. He joined the ISU ADVANCE Council in the Spring of 2010 as a Council partner.

Karen Zunkel
Dr. Karen Zunkel is the Director of the Program for the Women in Science and Engineering, which works to increase the participation of women in science, technology, engineering, and math (STEM) fields through a wide range of programs and partnerships. She joined the ISU ADVANCE Council in the Fall of 2009 as a Council partner.

Graduate Students and Post-Doctoral Research Associate

Craig Chatriand
Craig Chatriand is a Doctoral Student in Educational Leadership and Policy Studies. He works with Dr. Sandra Gahn on the database for the indicator tables, the Faculty Start-up Cost Equity study, and the Associate to Full Professor cohort analysis. Craig is a member of the Council and Research Team. He receives a stipend and tuition support from the grant.

Trina Ramirez
Trina Ramirez is a Doctoral Student in Educational Leadership and Policy Studies. She works with Dr. Flo Hamrick on designing program elements that enhance the recruitment and retention of faculty of color in STEM, including the ADVANCE Scholar Program. She helped to develop a workshop on Faculty Diversity in the STEM fields, featuring ISU ADVANCE external advisor Dr. Caroline Turner, in February 2010 Trina is a member of the ADVANCE Council. She receives a stipend and tuition support from the American Recovery & Reinvestment Act.
Divinity O'Connor-Roberts
Year 2 & 3: Divinity O'Connor-Roberts is a Graduate Student in Sociology. She worked as an administrative graduate assistant to support the organizing duties of the national conference that was held in October 2008. She received a stipend and tuition support from the grant. Her participation ended December 31, 2008.

Jason Pontius
Jason Pontius was a Doctoral Student in Educational Leadership and Policy Studies. He worked with Dr. Sandra Gahn on the database for the indicator tables, the Faculty Salary Equity and Faculty Start-up Cost Equity studies, and the AAUDE Faculty Satisfaction and Space surveys. He gave a presentation with ADVANCE co-PI Dr. Sandra Gahn in March of 2009 about the results of the AAUDE Faculty Satisfaction Survey at ISU. Jason was a member of the Council and Research Team. He received a stipend and tuition support from the grant. Jason left ISU ADVANCE for a permanent position in August of 2009.

Laura Rhoton
Dr. Laura Rhoton joined the ISU ADVANCE Program in August 2008 as a graduate research assistant. Her primary role in Year 3 was to participate in the Collaborative Transformation research in focal departments as a graduate student. She obtained her PhD in May of 2009, and started as a Post-Doctoral Research Associate with ISU ADVANCE in the summer of 2009 (Year 4). Dr. Rhoton is a member of the Council and Research Team.

Chris Chandler
Year 2: Chris Chandler is a graduate student in Ecology, Evolution and Organismal Biology. He joined the ADVANCE Program in April 2008 to modify and enhance our Web site. He received a stipend from the grant during part of the summer 2008. He completed the Web site in August of 2008 (Year 3).

Rebecca Sremack
Rebecca Sremack was a graduate student in Sociology who worked with the ISU ADVANCE Program in Years 1 and 2. In Year 1, she worked with Dr. Sandra Gahn to produce, error check, and format the indicator reporting tables and she provided administrative support for Team and Council meetings during fall 2006 semester. She also summarized relevant scholarly literature on gender bias and women in academia. In Year 2 she provided support on dissemination activities to the Equity Advisor/ADVANCE Professor group, the ADVANCE office and Dr. Bonita Glatz. She was conducting her Master's research on space satisfaction, in consultation with Drs. Bird and Fehr. She has worked on administering and analyzing the space satisfaction survey. Rebecca received stipend and tuition support from the grant. Her participation ended in Spring of 2008 (Year 2).

Program Staff

Susan Masters
During Year 1 & 2, Susan Masters was Program Assistant for ISU ADVANCE and was an integral part of the ADVANCE Program. She was responsible for correspondence, scheduling, book-keeping, faculty and student personnel actions, and supervising maintenance of the Web site. She was supported with funds from the grant. She resigned in May 2008 to accept a new opportunity at Iowa State.
Nicol E. Jones
Nicol Jones joined the ISU ADVANCE Program in July 2008 as the Program Assistant. She is responsible for correspondence, event preparation, scheduling, book-keeping, production of communications materials, and maintenance of the Web site. She was a member of the committee that planned the national conference on flexible careers in STEM, which occurred in Ames October 10-11, 2008. She also helped to coordinate the Year 3 NSF Site Visit to Iowa State University. She attends the meetings and takes minutes for the ADVANCE Council, co-PI Team, Steering Committee, and the Internal Advisory Board. She is supported with funds from the grant.

Undergraduate Students

Britney Peterson
Britney Peterson was an undergraduate student in Graphic Design at Iowa State. She worked with the ADVANCE program during spring 2008 to develop brochures, flyers, posters, and other dissemination materials for the program. She was supported by the grant. Year 3: Ms. Peterson did not work for ADVANCE.

Jessica Romaine
Year 1: Ms. Romaine transcribed interview tapes and assisted in the office with Web site maintenance and preparation of tables for the annual report. She worked in the ADVANCE office during summer 2007. Year 2: Ms. Romaine returned to the ADVANCE office during summer 2008 to assist with preparation of the annual report, analysis of data, and general office assistance. Year 3: Ms. Romaine worked in the fall of 2008 to help with general office duties and preparation for the national conference held in October. Ms. Romaine graduated from Iowa State University in December of 2008. She was supported by the grant.

Other Organizations and Collaborators

The ISU ADVANCE Program was involved with the following organizations and collaborators since the last annual report during Year 3 or 4. These are organized into two groups, beginning with the organizations and collaborators beyond Iowa State University and followed by the organizations and collaborators within Iowa State University.

Beyond Iowa State University:
- 17th annual C. elegans Meeting (meeting hosted paper presentation Year 3)
- American Association of Colleges & Universities Conference “Defining the Professoriate for the 21st Century (meeting hosted paper presentation Year 3)
- American Ornithologists’ Union Meeting (poster presentation Year 4)
- American Society for Engineering Education Conference (meeting hosted paper presentation Year 3)
- Associate for Institutional Research (AIR) Annual Forum (meeting hosted paper presentation Year 3)
- Big 12 Workshop on Faculty Diversity
- COS/AOU/SCO Meeting (co-chair of Symposium Year 4)
- NSF Joint Annual Meeting (poster presentation Year 3)
- NSF PI Meeting (poster presentation Year 4)
- Pacific Sociological Association Meeting (meeting hosted paper presentation Year 4)
- Southern Sociological Society Meetings (meeting hosted paper presentation Year 3)
• Way Up Conference (panel discussion Year 4)
• Western Academic Leadership Forum (meeting hosted paper presentation Year 3)
• Women in Science Conference
• External Advisors:
  o Dr. Jacquelyn Litt, University of Missouri-Columbia
  o Dr. Ronda Callister, Utah State University;
  o Dr. Caroline Sotello Viernes Turner, Arizona State University
  o Dr. Claire Van Ummersen, American Council on Education
• Discussions with faculty from other campuses during Year 3-4
  o Dr. Cindy Anderson, Ohio University
  o Dr. Kristi Anseth, University of Colorado-Boulder
  o Dr. Diana Billimoria, Case Western Reserve University
  o Dr. Suzanne Zurn Birkhimer, Purdue University ADVANCE
  o Dr. Dana Britton, University of Kansas
  o Dr. Jill Bystydzienski, The Ohio State University
  o Dr. Ronda Callister, Utah State University
  o Dr. Ellen Damschen, Washington University – St. Louis
  o Dr. Henri Darmon, McGill University
  o Dr. Mary D. Delany, University of California – Davis
  o Dr. Anand Desai, The Ohio State University
  o Dr. Faye Dong, University of Illinois, Urbana-Champaign
  o Dr. Christina Falci, University of Nebraska – Lincoln
  o Dr. Bonnie Fleming, Yale University
  o Dr. Karie Frasch, UC Berkeley Family Friendly Edge
  o Dr. Lisa Frehill, Commission on Professionals in Science and Technology
  o Dr. Sharon Glotzer, University of Michigan
  o Dr. Caroline Harwood, University of Washington-Seattle
  o Dr. Joan Herbers, The Ohio State University
  o Dr. Karen Horton, University of Maine
  o Dr. Sheila Innis, Child and Family Research Institute, University of British Columbia
  o Dr. Barbara Jacak, State University of New York-Stony Brook
  o Dr. Kasi Jackson, West Virginia University
  o Dr. Mary Juhas, The Ohio State University
  o Dr. Laura Kramer
  o Dr. Peggy Layne, Virginia Tech
  o Dr. Gretal Leibnitz, Washington State University
  o Dr. Jackie Litt, University of Missouri – Columbia
  o Dr. Susan J. Lolle, University of Waterloo
  o Dr. Anne Massaro, The Ohio State University
  o Dr. Julia McQuillan, University of Nebraska – Lincoln
  o Dr. Carolyn Merry, The Ohio State University
  o Dr. Michelle Miller, Southern Illinois University
  o Dr. Jan Rinehart, Rice University ADVANCE
  o Dr. Patricia Roos, Rutgers
  o Dr. Barbara Ryder, Rutgers
  o Dr. Jennifer Sheridan, University of Wisconsin – Madison
  o Dr. Linda Siebert, University Illinois Chicago ADVANCE
  o Dr. Caroline Sotello Viernes Turner
  o Dr. Nancy Steffen-Fluhr, New Jersey Institute of Technology
  o Dr. Kim Sullivan, Utah State University
  o Dr. Klaas van Breugel, Delft University of Technology
Within Iowa State University:

- College of Agriculture and Life Sciences Dean’s Cabinet
- College of Agriculture and Life Sciences – Liberal Arts and Sciences College Leadership Council
- College of Agriculture and Life Sciences Search Chairs
- College of Engineering Cabinet
- College of Liberal Arts and Sciences Dean’s Cabinet
- College of Liberal Arts and Sciences Diversity Committee
- College of Liberal Arts and Sciences Promotion & Tenure Committee
- Department of Aerospace Engineering Chair Search Committee
- Department of Aerospace Engineering Faculty
- Department of Agricultural and Biosystems Engineering Faculty
- Department of Educational Leadership and Policy Studies Faculty
- Department of Electrical and Computer Engineering Chair Search Committee
- Department of Electrical and Computer Engineering Faculty
- Department of Industrial Manufacturing Systems Engineering Faculty
- Department of Mechanical Engineering Chair Search Committee
- Department of Mechanical Engineering Faculty
- Department of Natural Resource Ecology and Management Faculty
- Department of Plant Pathology Faculty
- Department of Psychology Faculty
- FIRES—Faculty Initiatives to Recruit and Retain Excellence in STEM
- Grant writing team for I3 proposal
- Greenlee School of Journalism and Mass Communication
- Human Resource Services
- Iowa State PWISE Leadership Conference
- President and Provost’s Chairs Luncheon
- Vice President of Research and Economic Development

Internal Advisory Board:

- Dr. Pamela White, Dean, College of Human Sciences
- Dr. Elizabeth Hoffman, Executive Vice President and Provost
- Dr. Jonathan Wickert, Dean, College of Engineering
- Dr. John Thomson, Dean, College of Liberal Arts and Sciences
- Dr. Wendy Wintersteen, Dean, College of Agriculture and Life Sciences
A. INTRODUCTION TO PROGRAM ACTIVITIES AND FINDINGS

The ISU ADVANCE Program’s Comprehensive Institutional Intervention Strategy has four primary goals:

1. Overcome known barriers to women’s advancement across ISU STEM fields by improving perceived levels of departmental transparency, reducing isolation from colleagues, improving quality and quantity of mentoring, and institutionalizing career flexibility.

2. Overcome department-specific barriers to women’s advancement in STEM by working with department chairs and faculty to improve department and university climates for women and members of underrepresented minority (URM) groups and to implement best practices guidelines.

3. Increase overall participation/advancement of women faculty in senior and leadership ranks by increasing the number of women who submit tenure packets, earn tenure and promotion to associate professor and earn promotion to full professor, and by increasing the proportion of women in university leadership roles.

4. Institutionalize positive changes at the university level by increasing awareness among top administrators and the proportion of top administrators actively supporting institutional transformation, with regard to improving faculty work satisfaction and organizational commitment, and reducing work/family conflict.

As stated in our original grant proposal, the ISU ADVANCE Program involves both “bottom up” and “top down” approaches. Our “bottom up” activities include department interventions that are included in the Collaborative Transformation project. We also engage in “top down” activities that address policies and practices at the college and university levels. We seek to illuminate both subtle and overt impediments to equity, and to design strategies to dissolve impediments, thus transforming Iowa State University into an institution that facilitates retention and advancement of women and all underrepresented groups.

During Year 4, we identified the theme of ADVANCE-ing Faculty: Pathways to Promotion and Leadership. We focused on this theme as we initiated new activities and continued many of those begun in Years 1, 2, and 3. We have organized our reporting on these activities into three components, listed here and detailed in the coming sections of the report. We will begin with the “bottom up” component of the program, the Collaborative Transformation project at the department level.

Institutional Change in Departments, College, and the University (Report section III-B)

B.1 Assessing and facilitating cultural change in departments: Collaborative Transformation (CT) Project
B.2 Facilitating Change in Culture and Practices in the Colleges and University
B.3 Workshops and Networking Events
B.4 Mentoring Program to Combat Isolation
Program Management and Evaluation
(Report section III-C)
   C.1 ADVANCE Council and Team Leadership
   C.2 Training to Support Transformation
   C.3 Communication, Marketing, Publicity and Website
   C.4 Financial Management
   C.5 Formative Evaluation
   C.6 Consultations with External Advisors
   C.7 Evaluation of Workshops and Networking Events
   C.8 COACHE Survey Second Administration
   C.9 Salary Equity Study
   C.10 Interpretation of Key Indicators

Dissemination
(Report section III-D)
B. INSTITUTIONAL CHANGE IN DEPARTMENTS, COLLEGES AND THE UNIVERSITY

B.1. Assessing and Facilitating Cultural Change in Departments: Collaborative Transformation (CT) Project

To meet Goals 2 (Overcome department-specific barriers to women’s advancement in STEM) and 3 (Overcome known barriers to women’s advancement across ISU STEM fields, focusing on departmental transparency, isolation, mentoring, and career flexibility), we are engaged in a variety of activities and interventions that function from the “bottom up” at the level of STEM departments. In Year 4 we continued our intensive work with the Collaborative Transformation (CT) Project, including bringing our 3rd round of focal departments into the project one year ahead of schedule.

CT Project Description

The ISU Collaborative Transformation (CT) project is designed to gather department-level information about workplace climate, and then to use this information to develop collaborative strategies for enhancing aspects of departmental climate that negatively impact faculty recruitment, retention and promotion. Collaborative transformation is a project that respects differences across departments in the kinds of work cultures departments embrace, routine departmental practices, and structures for organizing the faculty members’ work. Climate results, which are based on the analysis of focus group and interview data from each department, are “mirrored back” to faculty in each department. These results encompass both positive and negative aspects of workplace climate in each department and include findings related to departmental recruitment, retention and promotion practices (especially as these affect women and faculty of color). After each department receives the results of the climate study, it develops its own department-specific change strategies. ISU ADVANCE researchers work with the departments throughout this process.

CT Project Leaders

During the fourth year of the ISU ADVANCE grant, CT data-collection, analysis, and implementation activities were led by researchers Sharon Bird (ISU ADVANCE Research Director/Co-PI), Carla Fehr (Co-PI), Lisa Larson (ADVANCE Equity Advisor), focal department ADVANCE Professors Ralph Napolitano (MSE), Jim Raich (EEOB), Steve Rodermel (GDCB), Elisabeth Huff-Lonergan (Animal Science), Mark Gordon (Chemistry), Shauna Hallmark (Civil, Construction and Environmental Engineering), Adam Bogdanove (Plant Pathology), Alan Goldman (Physics), Chuck Glatz (Chemical and Biological Engineering), and post-doc, Laura Rhoton. The diversity training workshop for 3rd round focal department APs and 3rd round focal department chairs was led by Carla Fehr (Co-PI).

CT Project Objectives

- Collaborate with ADVANCE Professor, department head/chair, and faculty in each focal department to (a) identify barriers to faculty members’ satisfaction and teaching/research productivity, (b) “mirror back” to each department those aspects of departmental climate, recruitment, retention and promotion that faculty find most/least helpful; (c) develop strategies for enhancing departmental climate, recruitment, retention and promotion that faculty find most/least helpful.
- Analyze focus group and interview data across focal departments to identify (a) general barriers to satisfactory work climate, recruitment, retention and promotion,
and (b) best approaches for diagnosing and addressing barriers, and how to implement them.

- Disseminate above information across colleges (and departments within colleges).

4th Year (2009-2010) CT Project Activities

- **Round 1 focal department work** led by ADVANCE Professors (in consultation with department chairs, departmental faculty and ISU ADVANCE researchers): These activities focused primarily on the completion of implementation strategies for enhancing departmental cultures, practices and structures to make them more conducive to the recruitment, retention and promotion of the best faculty—with particular emphasis on women and underrepresented groups. Departmental ADVANCE Professors in each of these departments (Ecology, Evolution and Organismal Biology; Genetics, Development and Cell Biology; Materials Science and Engineering) also completed progress reports on activities specific to their respective units. Major accomplishments included the development of guidelines for mentoring of Associate Professors, explicit discussions by departmental faculty regarding implicit biases during the hiring process, and the establishment of effective venues for Assistant Professors to provide input into departmental processes and to receive feedback regarding their own progress toward promotion.

- **Round 2 focal department work** led by ADVANCE Professors and ADVANCE Researchers (in consultation with department chairs, departmental faculty): These activities focused primarily on the researchers' analysis of department-specific data regarding departmental cultures, practices and structures, the finalization of departmental reports, the presentation of report findings to the faculty in each respective department, the development of strategies for enhancing departmental work cultures, practices and structures based on each department's CT report, and the implementation of those strategies. Departmental ADVANCE Professors in each of these three departments (Animal Science, Chemistry, and Civil Construction and Environmental Engineering) played a key role in presenting findings back to their departments, developing strategies for enhancing departmental cultures, practices and structures, and implementing those strategies. Major accomplishments included candid discussions with departmental faculty about how teaching assignments are distributed; discussion of university work-life balance policies during faculty meetings; increased transparency in processes for obtaining support from departmental staff persons; a departmental guidebook for new faculty that outlines routine departmental procedures (to help orient new faculty to the department and increase transparency); the elimination of a cumbersome/non-transparent system for assigning faculty teaching loads; and increased transparency regarding expectations of Assistant professors for promotion to Associate. (Less emphasis was placed by Round 2 departments on hiring processes because the university permitted so few hires in the 2009-2010 academic year).

- **Round 3 focal department work** led by ADVANCE Professors and ADVANCE Researchers (in consultation with department chairs, departmental faculty): These activities focused primarily on the Researchers' collection and analysis of department-specific data regarding departmental cultures, practices and structures, and the drafting (by Researchers) of departmental CT reports. Departmental ADVANCE Professors in each of these three departments (Chemical and Biological Engineering; Physics; Plant Pathology) and their department chairs participated in a training session (conducted by Researcher/Co-PI Carla Fehr) and orientation session (conducted by Researchers/Co-PI Sharon Bird), and played a key role in helping to coordinate focus groups and interviews during the data collection process.
ADVANCE Professors also began attending bi-monthly meetings of the EA/AP group (led by Co-PI Diane Debinski). By February 2010, each of the 3rd round focal departments had completed all focus groups and interviews for the climate study portion of the CT process. By April 2010, all focus group and interview sessions had been transcribed and an initial round of data coding had been completed.

CT Departmental Climate Study Findings

Results from focal department climate studies are presented first in departmental reports (containing information specific to each individual focal department). Analysis of data for each 1st and 2nd round focal department revealed 8-10 key findings per department. Department-specific findings from the climate study are reported back to the faculty in each focal department. Department-specific reports are not part of the public record. However, a synthesis of findings based on the analysis data across all 6 of the ISU ADVANCE 1st and 2nd round focal departments (EEOB, GDCB, MSE, ANSCI, CHEM, CCEE) are available in a report entitled, “ISU ADVANCE Collaborative Transformation: Rounds 1 & 2 Focal Department Synthesis Report (April 2010)” (Bird, Rhoton, Fehr and Larson, 2010). (See Appendix 1 for the report and for a listing of these findings).

3rd round focal department reports are currently being drafted. Once these reports have been completed and each 3rd round focal department ADVANCE Professor has begun the process of presenting the results of these reports back to their respective departments, a third “synthesis report” of climate study findings across the 1st, 2nd and 3rd round focal departments will be prepared.

CT Departmental Change Strategies Findings

Following the implementation of change strategies in each of the 1st round focal departments (EEOB, GDCB, MSE) under the leadership of the ADVANCE Professors in each of these departments (Janzen, Powell-Coffman, Constant), a synthesis report of departmental transformation outcomes was also prepared (Bird, Constant, Janzen, Powell-Coffman 2008) and presented. A second synthesis report of departmental transformation outcomes is now in progress.

CT Scholarly Dissemination: Reports (2009-2010) (Other related scholarly dissemination is listed elsewhere)
*All reports listed below are based upon work supported by the National Science Foundation under Grant No. SBE 06003999.


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1 The primary aim of the ISU ADVANCE CT project is to develop a better understanding for how to positively change department climate. Identifying each department’s strengths and weaknesses, in other words, is a means to an end, not an end in itself.
B.2. Facilitating Change in Culture and Practices in the Colleges and University

To meet Goal 1 (Overcome known barriers to the advancement of women faculty in STEM disciplines) and Goal 4 (Institutionalize positive change across the university) of our program, we are engaged in a variety of activities and interventions that function from the “top down,” at the college and university levels. In Year 4 we continued many of the programs begun in Years 2 and 3 and initiated new activities that focused on our theme of ADVANCE-ing Faculty: Pathways to Promotion and Leadership.

Activities
Our activities were focused in three arenas: the university level, the college level, and the infrastructure for communication among levels.

Activities at the university level

- **Faculty Fellows**: Each year the ISU ADVANCE Program has sponsored a Faculty Fellow (with financial support from the Executive Vice President and Provost) who has addressed a topic related to the theme of the year. In Year 4 the Fellows from both Year 3 and Year 4 were active and presented their work to the campus.

  *Recruiting the Best: The Role of Work-life Flexibility.* Dr. Mary Harris, ISU ADVANCE faculty fellow in 2008-09, reported on her work on faculty flexibility, which supported the theme for the ISU ADVANCE Program last year. Dr. Harris adapted (with permission) *Creating a Family Friendly Department: Chairs and Deans Toolkit* that was produced by the UC Faculty Family Friendly Edge (http://ucfamilyedge.berkeley.edu/). The ISU version of the Toolkit focuses on policies and procedures that are appropriate at Iowa State University. On November 4, 2009 Dr. Harris led a workshop for Chairs and Deans on Flexible Faculty Careers and on November 17 she led a lunchtime discussion on ISU Resources and Policies that Support Faculty Flexibility, which was open to all faculty and staff. Dr. Harris’s handbook *ISU Policies and Guidelines for Flexible Faculty Careers: Resources for Chairs & Deans* (Appendix 2), is posted on the Provost’s website and is linked to the ISU ADVANCE website.

  *Pathways for Promotion from Associate to Full Professor.* Dr. Annette O’Connor, ISU ADVANCE faculty fellow in 2009-10, was appointed to consolidate and enhance resources on Promotion from Associate to Full Professor at Iowa State. Dr. O’Connor, Associate Professor of Veterinary Diagnostic & Production Animal Medicine, is gathering information from other institutions and is exploring data from ISU to examine the pathways to promotion for men and women in STEM and non-STEM disciplines. She presented a campus-wide workshop in March 2010 and will prepare resources for department chairs and for faculty to facilitate communication about the topic of advancement. In fall 2010 a workshop for chairs will be presented and the new resources will be distributed.

- **ISU ADVANCE supported events for department chairs.** As the program has developed, we have strengthened our communication with and sponsorship of
workshops presented for department chairs. In Year 3 (after the previous annual report was prepared) and in Year 4, the following activities occurred:

- Workshop for Department Chairs in ADVANCE Focal Colleges, April 20, 2009. **Promotion and Tenure at ISU: Strategies for Ensuring Equity.** Dr. Jan Thompson, Equity Advisor in the College of Agriculture and Life Sciences, presented a workshop for chairs and deans about making the promotion and tenure process more transparent. A Reader’s Theatre production with several ADVANCE Council members and partners showcased a case study in which a faculty member is unsuccessfully reaching out for help to her colleagues about the tenure process. Small group sessions followed to determine what issues the faculty member was facing, and how they could be rectified within the department. Pre and post workshop questionnaires were filled out by participants.

- Workshop for all ISU Department Chairs November 4, 2009: **ISU ADVANCE Workshop on Resources for Chairs and Deans on Flexible Faculty Careers.** Dr. Mary Harris, ISU ADVANCE faculty fellow in 2008-09, reported on her work on faculty flexibility, which supported the theme for the ISU ADVANCE Program last year, "Recruiting the Best: The Role of Work-life Flexibility." Harris prepared a Handbook on Faculty Flexibility at ISU for Deans and Chairs.

- Workshop for all ISU Department Chairs April 26, 2010: **ISU ADVANCE Presentation to President’s and Provost’s Luncheon for Department Chairs.** Dr. Kristen Constant coordinated a panel presentation of three ADVANCE focal department chairs who discussed their experiences with ADVANCE. Each panelist presented brief comments, then the floor was opened to discussion. The presentations and discussion focused on the seven major themes that were common to all six of the Round 1 and Round 2 departments that have participated in the Collaborative Transformation project. The three panelists covered the topics of mentoring, the faculty search process, and collegiality within departments.

- **ISU ADVANCE met and partnered with diversity partners on campus.**
  - Executive Director and PI meet regularly with the Women’s Leadership Consortium (WLC). Areas of mutual interest between ADVANCE and the WLC are gender balance in leadership and committee positions at Iowa State and the impact of budget reductions on women faculty and programs that support women on campus.
  - PI and Executive Director collaborated with colleagues to secure funding through the NSF I³ (Innovation through Institutional Integration) competition. The program, Strengthening the Professoriate at Iowa State University, will emphasize the importance of Broader Impacts in the research enterprise, and will expand the role of the Equity Advisors after ADVANCE funding ends.
  - PI presented a workshop on “work/life Issues and leadership” to the ISU Emerging Leaders Academy, a group of faculty and staff interested in academic leadership (February 2010).

- **Development of a plan for recruitment of underrepresented minority women faculty in STEM**
  In our January 22, 2010, response to the ADVANCE program director, Dr. Kelly Mack, we outlined a plan to address concerns raised during the August 2009 site visit about our work on recruitment and retention of underrepresented minority women in STEM. Our plan includes continuing several established ISU ADVANCE efforts as well as undertaking additional interventions to enhance our progress.
Continuing efforts. The ADVANCE Scholars program recruited four new underrepresented minority women STEM faculty to its ranks during Year 4 and continues its focus on increasing retention of underrepresented minority faculty (see section B4 for a summary of the Scholars program).

Additional interventions. During spring semester 2010, an ADVANCE workgroup was convened to finalize a “strategic plan for addressing racial/ethnic diversity among STEM faculty.” The group included the PI, the ISU ADVANCE Executive Director, the Director of Equal Opportunity and Diversity, and two new members of the ADVANCE team, Dr. Connie Hargrave and Dr. Eugenio Matibag (two faculty with expertise in this area). This group is finalizing a strategic plan which sets diversity goals for future searches using the new electronic search system in place for faculty searches; identifies departments (both on and off campus) to serve as local models for the recruitment/retention of underrepresented minority faculty and outlines a plan to draw from their expertise; sets expectations for the 2010-2011 ADVANCE project to develop search training materials and protocols. In addition, the program has already met two of the goals outlined in the January 22 letter, 1) by welcoming two underrepresented minority faculty to the ADVANCE Council in spring 2010 and 2) by hosting a retreat for the university community on the issue of underrepresented minorities in STEM, featuring Dr. Caroline Sotello Viernes Turner, a national expert in the recruitment of diverse faculty and an ISU ADVANCE external advisor.

Finally, we have redirected some of our NSF funding and pooled funds supplied by our five STEM deans to support a 2010-2011 ADVANCE Fellow who will lead our efforts to create and manage a search training process for ISU. The training will be largely directed to ensuring that faculty participating in searches will employ best practices for recruiting both women and underrepresented minorities to STEM faculty positions. We are undertaking this effort because we believe it will enhance our program effectiveness and despite the fact that search committee training was not part of the original scope of the ISU ADVANCE program.

• Focus on Women in Leadership
  In response to the external site visit and the follow-up agreements developed with program director Dr. Kelly Mack, The Executive Vice President and Provost has worked with ISU ADVANCE and the deans to appoint a taskforce charged to: (1) disseminate current data on the significant underrepresentation of women among department chairs at Iowa State, (2) survey the colleges to discover the existing practices for recruiting, reviewing and reappointing department chairs, (3) develop a set of best practices for recruiting, reviewing and reappointing department chairs that would go to the search committees for new chairs.

  During spring semester 2010, a Taskforce on ISU Department Leadership was convened to begin this review. Chaired by the ADVANCE PI, the committee includes a STEM Dean, 4 current or past department chairs (3 of them from STEM disciplines), and a former ADVANCE Professor. Additional members include an associate dean, a representative from the University Committee on Women, and a representative from Equal Opportunity and Diversity. There is strong representation of women and under-represented minorities.

  The committee charge was developed by the Deans’ Council, the Department Chair Cabinet, the University Committee on Women, the Women’s Leadership Consortium, and the Faculty Senate. To enhance both the success and diversity
of chairs at ISU, the Taskforce will take on the job of defining the chair’s role, with review of practices both on and off campus. Currently the Taskforce has commissioned an updated version of a 2005 report on “Trend Analysis on Department chairs, 1994-2005”, and is developing protocols for interviewing chairs (current and past) as well as senior women faculty who have not been chairs. The Taskforce has a December 2010 target for completion of its work.

**Sustainability through partnerships with other NSF-sponsored programs**

Sustainability has permeated our discussions in year 4 and one way we have prepared for continuation and enhancement of some of our efforts is by collaborating with ISU colleagues to prepare a proposal for the i^3 (Innovation through Institutional Integration) competition. Our proposal was funded and the program “Strengthening the Professoriate at Iowa State University (SPISU): A Campus Network to Enable Strong Science and Diverse Communities” will begin 1 July 2010. The focus of the proposal is on strengthening broader impacts for faculty researchers and it builds on many principles of the ISU ADVANCE Program. One of the key components that will bridge ADVANCE and SPISU is the participation of Equity Advisors, which will be funded by the colleges for five years and will include all five STEM colleges, rather than only three, as we have with ADVANCE.

**Activities at the college level**

- In the College of Engineering, the Equity Advisor continued her active and visible role working with chairs of departments and search committees to encourage use of the Resources for Faculty Searches developed by the ADVANCE Program. The Equity Advisor served as an external member of two searches for Department Chairs in Engineering.
- In the College of Liberal Arts & Sciences the Equity Advisor met with the Dean’s cabinet of department chairs and shared data about the status of women in the college. This data-driven perspective was valued by the chairs and prompted questions and follow-up.
- In the College of Agriculture and Life Sciences, the Equity Advisor reports to the college on ADVANCE activities at each meeting of the Dean’s cabinet of department chairs. The Equity Advisor also participated in workshops held for faculty planning their promotion and tenure activities.

**Activities in the area of infrastructure for communication among levels**

The **Equity Advisor/ADVANCE Professor (EA/AP) Working Group** serves to ensure communication across the three partner colleges included in the ISU ADVANCE program and between the college-level EAs and the focal department APs. It also ensures communication among ADVANCE members and other university groups whose activities might be synergistic. EAs conduct the majority of their work at the college level and represent ADVANCE at events such as college-level cabinet meetings of the deans and departmental chairs. They also participate in organizing college and university-wide activities such as networking events, workshops, and the ADVANCE lectureship series. APs conduct the majority of their work at the departmental level and play leading roles in the Collaborative Transformation activities. These groups all work together and communicate regularly to promote synergistic efforts among departments, colleges, and the university community at large. One of the major activities during the EA/AP Working Group meetings is the time for members to report to the group on successes and challenges in their intervention work. In Year 4 the EA/AP Working Group continued to
meet twice per month, with subgroups of APs from each round and the subgroup meetings of EAs meeting together for the first 30 minutes, followed by a larger group meeting for the final hour.

Notes from these meetings are then circulated via e-mail to the ADVANCE team and archived in the internal ADVANCE electronic resource.

The EA/AP Working Group meetings have proved to be critical in bringing new team members up to speed in understanding the overall goals and approaches of the ADVANCE program at Iowa State and in understanding how collaborative transformation is accomplished. This year the EA/AP Working Group included ADVANCE Professors from three rounds (a total of nine faculty members), three Equity Advisors, and Diane Debinski, Bonnie Bowen, Sharon Bird, and Carla Fehr. Additional ADVANCE Co-PI team members and collaborators joined us as needed for discussions of particular topics. The group reached its maximum size to date as we brought in ADVANCE Professors for the third and final round of focal departments. We also transitioned to three new individuals playing the role of the ADVANCE Professor in Round 1 focal departments because these positions are generally 2 yrs in length.

In Year 4, the EA/AP Working Group has continued to be the venue where “grassroots” ADVANCE efforts and ideas are initiated and discussed. Because many of our other meetings (e.g., the ADVANCE Council) have increased in size as additional partners that are brought in each year, there is less opportunity for spontaneity and these meetings have become largely “reporting out” sessions to the larger college and university community. This has made the EA/AP Working Group even more important as a more informal venue for discussion.

Findings and Accomplishments

Efforts to facilitate change at the college and university levels have succeeded in the following ways:

- There is a realization across colleges (largely due to ADVANCE efforts) that faculty need mentoring to move from the Associate to the Full Professor ranks. The ADVANCE faculty fellow in the Provost’s office, Dr. Annette O’Connor, focused on “Pathways to Promotion” during 2010. Dr. O’Connor met with ADVANCE Professors early in the academic year. This stimulated conversations in focal departments and Dr. O’Connor attended a departmental meeting of one of the focal departments to discuss ways to mentor faculty from the Associate to the Full Professor rank.

- Discussions in the Equity Advisor/ADVANCE Professor working group led to a suggestion that department chairs from ADVANCE focal departments could be encouraged to present information to their peers to encourage implementation of best practices that are conducive to ADVANCE goals. Chair training is recognized as a valuable way to keep ADVANCE topics visible to campus leaders. We planned a chair training event that occurred in late April, featuring chairs from each of the three rounds of focal departments. Chairs discussed the efforts associated with Collaborative Transformation in their departments.

- Equity Advisors are playing key roles at the college-level. Kristen Constant, Equity Advisor in the College of Engineering, regularly attends the Academic Council meetings in the Engineering College to give a 5-10 minute presentation about ADVANCE updates. Jan Thompson, Equity Advisor in the College of Agriculture and Life Sciences, attends similar meetings in her college. The College of Liberal Arts & Sciences has opted not to have Equity Advisor Lisa Larson attend Academic Council
meetings due to time constraints, but she has organized other college-level meetings to get her message across.

- ADVANCE College Councils for Engineering and CALS/LAS each met during fall, 2009 and a CALS/LAS meeting occurred in April, 2010. These groups provide an opportunity for Equity Advisors, ADVANCE Professors, and members of the Co-PI team to meet with associate deans, focal department chairs, and representatives of college diversity committees. Discussions at these meetings are productive, though attendance is not consistent.

- Male participation in the role of ADVANCE professor increased significantly during Year 4. Currently, all of the Round 1 and Round 3 and one of the Round 2 ADVANCE Professors (seven of nine APs) are male. None of the three Equity Advisors are male.

- The budget crisis was the overwhelming issue for all departments and colleges in Year 4. This presented both challenges and opportunities. Due to the large amount of faculty meeting time that departments were devoting to the budget crisis, virtually all of the ADVANCE professors had more difficulty getting ADVANCE-related discussions onto the agenda this year. The EA/AP working group began to think more about how what we have learned from ADVANCE could be used to help make the most of these transitions and obtain the best possible outcome. In Dec. 2009 and Jan. 2010, the EA/AP Working Group began to focus more of their discussions on the impacts of budget cuts at ISU and initiated the writing of a document to point out ways that the findings from the work in the ADVANCE Program can help departments and colleges with difficult decisions. This document, entitled “Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program”, (Appendix 3) was written during the EA/AP Working Group meetings, vetted with the co-PI team and the Provost’s office, and is now being widely disseminated and used as a starting point for discussions with chairs, deans, and other university leaders. The document is available under Quick Links on our website www.advance.iastate.edu.

### B.3. Workshops and Networking Events

**Workshops** (see section B.2. for descriptions of workshops for Chairs and Deans)

- **April 20, 2009:** ISU ADVANCE Workshop for Department Chairs – Promotion and Tenure at ISU: Strategies for Ensuring Equity. (see section B.2.)

- **November 4, 2009:** ISU ADVANCE Workshop on Resources for Chairs and Deans on Flexible Faculty Careers. (see section B.2.)

- **November 17, 2009:** ISU ADVANCE Lunchtime Discussion on ISU Resources and Policies That Support Faculty Flexibility. Dr. Mary Harris, ISU ADVANCE faculty fellow in 2008-09, lead a lunchtime discussion for the campus community, during which she presented resources that are available to ISU faculty, including policies and guidelines for increased flexibility to balance work/life demands.

- **February 23, 2010:** ISU ADVANCE Workshop on Recruitment and Retention of Underrepresented Faculty in STEM: The Case of the Mathematical and Theoretical Biology Institute Summer Research Program. Dr. Caroline Sotello Viernes Turner, Professor of Educational Leadership and Policy Studies, Lincoln Professor of Ethics and Education, and Doctoral Program Director for Higher and Postsecondary Education, Arizona State University, presented a luncheon workshop for administrators, faculty and students. She also participated in several small group meetings throughout the day. Dr. Turner is an External Advisor for the ISU ADVANCE Program.
• March 29, 2010: ISU ADVANCE Workshop on Pathways to Advancement: Associate to Full Professor. Dr. Annette O’Connor presented promotion and tenure research she conducted as our ISU ADVANCE faculty fellow in 2009-10. A panel of three full professors, Dr. Anne Marie VanDerZanden, Horticulture, Dr. James Raich, Ecology, Evolution and Organismal Biology, and Dr. Nicola Pohl, Chemistry, discussed their experiences with promotion at Iowa State University. A question and answered session followed.

• April 26, 2010: ISU ADVANCE Presentation to President’s and Provost’s Luncheon for Department Chairs. (see section B.2.)

Networking Events

• March 4, 2010: College of Engineering Women’s Brown Bag Lunch Discussion. Led by Dr. Kristen Constant, Equity Advisor.

• April 8, 2010: Luncheon for Microbiology Graduate Student Organization with Dr. Caroline Harwood, Professor, Department of Microbiology, University of Washington – Seattle. Dr. Harwood’s visit to Iowa State was sponsored by the ISU ADVANCE Lecturer program.

• April 13, 2010: Chicken Soup for the Soul: Chronicles from Inside Several Coops. Dr. Mary D. Delany, Associate Dean, College of Agricultural and Environmental Sciences, University of California – Davis, met with faculty and students in Animal Science. Dr. Delany’s visit to Iowa State was sponsored by the ISU ADVANCE Lecturer program.

ISU ADVANCE Lectureships

During Year 4 we continued the ADVANCE Lecture series that was initiated in Year 2. Departments applied for the funds ($1,000 per lecture) to sponsor lectures by prominent women in STEM fields. Lecturers presented disciplinary seminars in the departments and also attended networking events with interested faculty and students (see above). This has brought in several high profile women in STEM fields who have given lectures, met with administrators, and shared insights from their universities and colleges regarding issues such as recruitment and retention of minority undergraduate students. We plan to sponsor three additional awards in Year 5.

• Microbiology Graduate Student Organization: "Bacteria for Bioenergy: Hydrogen Gas Production," Dr. Caroline Harwood, Professor, Department of Microbiology, University of Washington – Seattle, April 8, 2010.

• Department of Animal Science and the Center for Integrated Animal Genomics: "Evolving roles for the telomere-telomerase pathway in vertebrate cancers: Investigations of chicken host – herpes virus genome interactions in Marek’s disease," Dr. Mary D. Delany, Associate Dean, College of Agricultural and Environmental Sciences, University of California - Davis, April 13, 2010.

ISU ADVANCE Lecture Co-sponsorships

In addition to the ADVANCE Lectureships, we co-sponsored (with awards up to $300) lectures/seminars by speakers who addressed topics of interest to ADVANCE. In Year 4 we sponsored 5 presentations, using funds from an account from the Provost’s office.

• Department of Chemical and Biological Engineering 2009-10 Graduate Seminar Series: "From Patchy Particles to Shape Amphiphiles: Designing a New Generation of Materials Building Blocks," Dr. Sharon Glotzer, Professor of
Department of Chemical and Biological Engineering 2009-10 Graduate Seminar Series: "Cellular Control in a Couple of Clicks," Dr. Kristi Anseth, Distinguished Professor in Chemical and Biological Engineering, University of Colorado – Boulder, January 14, 2010.

2010 Midwest Ecology and Evolution Conference: "Plant Community Responses to Connectivity and Climate Change at Large Scales," Dr. Ellen Damschen, Assistant Professor, Department of Biology, Washington University – St. Louis, March 28, 2010.

Interdepartmental Genetics Graduate Program, Departments of Entomology and Veterinary Microbiology and Preventative Medicine: "Genetics and genomics of the emerging model organism: Tribolium castaneum, Red Flour Beetle," Dr. Susan J. Brown, Professor, Department of Biology, Kansas State University, April 5, 2010.

Department of Physics and Astronomy Colloquium: "Quark Gluon Plasma: From Particles to Fields?" Dr. Barbara Jacak, Distinguished Professor of Physics, State University of New York – Stony Brook, April 12, 2010.

Evaluation of Workshops and Networking Events
See Section II-C7.

B.4. Mentoring Program to Combat Isolation

ISU ADVANCE Scholar Program
(formerly the ISU ADVANCE External Mentoring Program)

ADVANCE Scholar Program
The ISU ADVANCE Scholar Program is intended to enhance the recruitment, retention and advancement of women faculty of color in STEM disciplines. The objective is to facilitate mentoring and collaborative relationships between ISU STEM women faculty of color and eminent scholars in their fields. In Year 4, we focused on recruiting four new underrepresented minority women faculty to the program. The target audiences are ISU tenure-eligible faculty members as well as mid-career (tenured) faculty members who are nearing critical transition points in their careers. Reciprocal campus visits for the ISU Advance Scholars and Eminent Scholars are arranged and funded. Co-PI Dr. Flo Hamrick coordinated the program in Year 4.

Activities in Year 4

- Contacted all eligible faculty members (assistant and associate professors in STEM departments), met with current Scholars and six additional prospective Scholars to discuss program specifics and invite their participation.
- Confirmed participation of four returning and four new 2009-2010 ISU ADVANCE Scholars.
- Increased program participation to a total of eight ISU faculty members (including 1 African American, 3 Latina/Hispanic women)
- Collaborated with Graduate Assistant Ms. Trina Ramirez in updating website resources and coordinating Dr. Caroline S.V. Turner’s ISU visit and guest lecture. Dr. Turner met with four ISU ADVANCE Scholars for dinner during her visit.
• Coordinated two luncheon gatherings of ISU ADVANCE Scholars to provide opportunities for peer mentoring.

Findings/Results
• Five trips to ISU by Eminent Scholars and seven trips by ISU ADVANCE Scholars to confer with Eminent Scholars and present their research. Three additional trips are scheduled for Summer 2010.
• ISU ADVANCE representatives attended the presentations at ISU to greet the Eminent Scholars and visit with ISU ADVANCE Scholars.

Evaluation
Five ADVANCE Scholar Program pairs (ISU ADVANCE Scholars and Eminent Scholars in their disciplines or specialty areas) participated in the ISU ADVANCE Scholar Program during 2008-2009, the inaugural year of the program. By the first week in June 2009, three Eminent Scholars had visited Iowa State University and three ISU ADVANCE Scholars had visited their Eminent Scholars' institutions. During summer 2009, the five ISU ADVANCE Scholars described the nature of their engagements in the ADVANCE Scholar Program. The ISU ADVANCE Scholar Program website maintains detailed information about presentations and visits sponsored by the ADVANCE Scholar Program. Summary highlights reported by ISU ADVANCE Scholars include:

• Receiving career advice, mentoring, encouragement, and funding source advice from Eminent Scholars.
• Engaging in reciprocal e-mail and/or phone contacts with Eminent Scholars.
• Collaborating on funding proposals with Eminent Scholars and/or reviewing draft funding proposals and manuscripts with Eminent Scholars.
• Networking with Eminent Scholars’ colleagues.
• Collaborating in laboratory work and/or research-related interactions with Eminent Scholars’ postdocs, graduate students, and staff members.
• Hosting Eminent Scholars’ ISU visits as part of departmental seminar/colloquium series.

All five ISU ADVANCE Scholars asked to continue participation into 2009-2010. The detailed evaluation summary can be found in Appendix 4.

Working toward Sustainability
• Since the participating faculty members are active scholars and maintain busy schedules, submitting advance documentation of their plans for Scholar Program travel can be neglected in favor of addressing more immediate priorities. More frequent e-mail reminders of the necessity to provide the ISU ADVANCE Office with travel estimates and dates – along with electronic copies of the relevant forms – have increased overall responsiveness.
• International travel by some ADVANCE Scholars was supported yet also resulted in inequitable allocations among the ADVANCE Scholar pairs. Internal sources of matching or supplemental funding for faculty members’ travel have declined because of current resource constraints at ISU. In response, the Scholar Program has established a set budget for ADVANCE Scholar travel (i.e., $3000 per year per Scholar pair). In order to provide a level of flexibility, allowable expenses that exceed this budget may be deducted from the pair’s allocation for the following year.
• With the increase in Scholar pairs from five to nine in 2009-2010 (i.e., from a total of 10 participants to 18), the ISU ADVANCE program assistant’s work coordinating travel arrangements and providing logistical support for trips has become unwieldy. Accordingly, staff members who coordinate faculty travel in academic departments (in collaboration with the ISU ADVANCE Scholars) will be responsible for these tasks. The ISU ADVANCE program assistant will process travel reimbursements as well as honoraria for Eminent Scholars, and she will monitor planned and actual expenditures.

• We discovered that one category of otherwise eligible Eminent Scholars – federal research lab or agency staff members – are prohibited from accepting honoraria and traveling on ISU ADVANCE grant funds. However, this did not pose an impediment to a current Eminent Scholar’s agreement to participate in the Program, and the paired ISU ADVANCE Scholar’s travel funds were not affected. Consequently, senior faculty members or senior research scientists may appreciate the honorarium and travel support, but these benefits may or may not play pivotal roles in their decision to participate in this sort of program.

• Finally, two of the five 2008-2009 ISU ADVANCE Scholars renewed their participation for the current year yet selected new Eminent Scholars after determining that their initial Eminent Scholars were less suitable matches. All parties in this situation were able to bow out gracefully, and the stated one-year commitment for ADVANCE-Eminent Scholar matches may well have facilitated the ADVANCE Scholars’ ending the formal relationship. This one-year commitment with an option for renewal appears to be a desirable feature for a program centered on fostering mutually-beneficial collaborations, networking, and mentoring.

Eminent Scholar Lectures at Iowa State University during Year 4:

Diophantine Equations and Periods
Delivered as an ISU Department of Mathematics Colloquium Address, April 2, 2009.
Eminent Scholar: Dr. Henri Darmon, James Mc McGill Professor, Department of Mathematics, McGill University, Montreal, Canada
(ISU ADVANCE Scholar: Dr. Ling Long, Assistant Professor of Mathematics)

Omega 3 Fatty Acids in Neural Development and Function
Delivered as an ISU Department of Food Science and Human Nutrition Seminar May 13, 2009.
Eminent Scholar: Dr. Sheila Innis, Professor, Faculty of Medicine, Department of Pediatrics & Faculty of Agricultural Sciences, Foods, Nutrition and Health, Child and Family Research Institute, Univ. of British Columbia
(ISU ADVANCE Scholar: Dr. Manju Reddy, Associate Professor of Food Science and Human Nutrition)

Graduate Education: Preparing for a Successful Career
Delivered as an ISU Department of Food Science and Human Nutrition Seminar, September 2, 2009
Eminent Scholar: Dr. Faye Dong, Professor and Chair, Department of Food Science and Human Nutrition, University of Illinois, Urbana-Champaign
(ISU ADVANCE Scholar: Dr. Toni Wang, Associate Professor of Food Science and Human Nutrition)
The Secret Life of Inbreeders: How a Model Met Its Match
Delivered as a Department of Agronomy/Seed Science Center Guest Seminar, October 19, 2009
Eminent Scholar: Dr. Susan J. Lolle, Associate Professor, Department of Biology, University of Waterloo, Canada
(ISU ADVANCE Scholar: Dr. Susana Goggi, Associate Professor, Department of Agronomy/Seed Science Center)

Nu Frontiers in Particle Physics
Delivered as a Department of Physics and Astronomy Colloquium, March 22, 2010
Eminent Scholar: Dr. Bonnie Fleming, Horace D. Taft Associate Professor of Physics, Yale University
(ISU ADVANCE Scholar: Dr. Mayly Sanchez, Assistant Professor of Physics)

ISU ADVANCE Scholar Lectures presented during Year 4:

Protecting Multicast Sessions in WDM Optical Networks
Delivered at the University of California, Los Angeles, Department of Computer Science, April 9, 2009
ISU ADVANCE Scholar: Dr. Lu Ruan, Associate Professor of Computer Science
(Eminent Scholar: Dr. Lixia Zhang, Professor of Computer Science, University of California, Los Angeles)

Noncongruence Modular Forms and Modularity
Delivered as part of the Québec-Vermont Number Theory Seminar, McGill University, Montreal, Canada, April 23, 2009
ISU ADVANCE Scholar: Dr. Ling Long, Assistant Professor of Mathematics, Iowa State University
(Eminent Scholar: Dr. Henri Darmon, James Mc McGill Professor, Department of Mathematics, McGill University, Montreal, Canada)

Recent Development and Study of Self-Consolidating Concrete for Slip Form Construction
Delivered as part of the 27th Microlab Colloquium, Delft University of Technology, Netherlands, May 28, 2009.
ISU ADVANCE Scholar: Dr. Kejin Wang, Associate Professor of Civil, Construction, and Environmental Engineering
(Eminent Scholar: Dr. Klaas Van Bruegel, Professor, Delft University of Technology)

Reverse Zoonosis of Pandemic H1N1 Influenza Virus in Cats: a Sero-Molecular Epidemiological Study*
Delivered at the International Symposium on Neglected Influenza Viruses Conference, Amelia Island, Florida, February 3-5, 2010 (Conference dates)
ISU ADVANCE Scholar: Dr. Jessie Trujillo, Assistant Professor, Center for Advanced Host Defenses, Immunobiotics and Translational Comparative Medicine, College of Veterinary Medicine
(Eminent Scholar: Dr. Richard J. Webby, Associate Member, St. Jude Faculty, St. Jude’s Children’s Research Hospital, Memphis, Tennessee)
*Authored by Dr. Trujillo with 13 co-authors
Some Results on Supercongruences
Delivered as part of the workshop series “Arithmetic and Geometry of Algebraic Varieties” at the Fields Institute for Research in Mathematical Sciences, Toronto, Ontario, Canada. March 2-7, 2010 (Meeting dates)
ISU ADVANCE Scholar: Dr. Ling Long, Associate Professor of Mathematics.
(Eminent Scholar: Dr. Henri Darmon, James Mc McGill Professor, Department of Mathematics, McGill University, Montreal, Canada)

Lipid Chemistry in Food, Energy and Art Applications
Delivered as a Food Science and Human Nutrition Graduate Seminar, University of Illinois, Urbana-Champaign, March 5, 2010
ISU ADVANCE Scholar: Dr. Toni Wang, Associate Professor of Food Science and Human Nutrition
(Eminent Scholar: Dr. Faye Dong, Professor and Chair, Food Science and Human Nutrition, University of Illinois, Urbana-Champaign)

Genome Fluidity in Soybeans and Its Importance to Plant Adaptation
Lecture presented as a Department of Biology Seminar, University of Waterloo, Canada, March 26, 2010
ISU ADVANCE Scholar: Dr. Susana Goggi, Associate Professor, Department of Agronomy, Seed Science Center
(Eminent Scholar: Dr. Susan J. Lolle, Associate Professor of Biology, University of Waterloo, Canada)

Summer 2010 trips are planned involving the following Scholar Program pairs:
Dr. Malika Jeffries-EL, Chemistry
(Eminent Scholar) Dr. Timothy Swager, MIT
Dr. Mayly Sanchez, Physics and Astronomy
(Eminent Scholar) Dr. Bonnie Fleming, Yale
Dr. Manju Reddy, Food Science and Human Nutrition
(Eminent Scholar) Dr. Bo Lönnerdal, UC Davis

C. Program Management and Evaluation

C.1. ADVANCE Council, Team and Internal Advisory Board Leadership

As described in Section II (Management and Infrastructure), our ADVANCE Council and ADVANCE Team were initially the primary entities responsible for oversight and implementation of the program. In Year 2 of our program, as our collaborators grew in number, we modified the structure of our groups to promote increased efficiency of meetings. Key changes were the establishment of the Steering Committee and the Internal Advisory Board. In Years 3 and 4 we have continued the structures we implemented in Year 2. The Steering Committee (membership is described in Section II-B) met every two weeks to discuss management of the project, personnel issues and financial decisions. The ADVANCE Co-PI team continues to meet twice per month, alternating their discussion topics between Collaborative Transformation Research and Data/Evaluation. The Team continues to discuss progress with respect to implementation of the grant, project administration and roles of personnel. The Steering Committee agendas and minutes were circulated to the co-PI team to keep everyone informed. The ADVANCE Council met twice per semester in Year 4. The additional members from non-focal colleges and third round focal departments increased the size of the Council and the potential for reaching additional faculty and departments. The Council focused on ways to sustain efforts of the ADVANCE
Program after funding ends and it provided formative evaluation throughout the year (see sections III.C.5.A and III.C.5.B. in Formative Evaluation for key points). The EA/AP working group also met separately, with one of the co-PIs as the organizer and circulated the meeting notes to the larger team. This new subdivision of labor has facilitated management of our increasingly complex program.

The Internal Advisory Board (see section II.A. for composition) provided key leadership in Year 4, during a period of economic challenges at Iowa State. In early December 2009, when we met with our Internal Advisory Board, the Provost strongly supported the suggestion from the ADVANCE Professors to have focal department chairs share their experiences with other chairs. The Provost suggested that this discussion might occur at the springtime luncheon for chairs sponsored by the President and Provost. This event is usually well attended by the chairs and provides a very high profile opportunity to showcase the activities of ADVANCE in departments. Support from the Provost was key to the success of this event, which occurred April 26, 2010. Our second meeting with Internal Advisory Board during Year 4 occurred on April 5, 2010. This meeting provided an opportunity for us to present some of our key accomplishments with the Collaborative Transformation Project and to discuss its future after NSF funding ends. The Deans are aware of the value of the CT Project and discussed options with us, though no funding was promised. At this meeting we shared our “Transitions” document with the Deans and discussed the potential for using the principles described in it during these times of budgetary challenge. The support of the Provost and the Deans was evident at the IAB meetings this year.

C.2. Training to Support Transformation

In Year 4 we presented a Training Workshop that was similar to the Diversity Workshop presented in Year 3. The audience for this workshop included ADVANCE Professors and Chairs from round three focal departments and other members of the ADVANCE Council, including two associate deans. Dr. Carla Fehr was the co-PI Team member who was responsible for coordinating and presenting this workshop, which focused on the impact of implicit gendered bias at individual, interpersonal and institutional levels of organization. This workshop involved presentation and discussion of data on implicit bias and gendered institutional structures, as well as discussion of case studies. The Associate Deans who attended both communicated their support and praise for the workshop, with follow-up messages to Dr. Fehr.

C.3. Communication, Marketing, Publicity and Website

We have disseminated information about the ISU ADVANCE Program through our website (www.advance.iastate.edu). Through website statistics we are able to determine the needs of our community. Between the months of April 2009 and April 2010, we had an average of 633 different visitors view our website each month, for an average of 935 total visits per month.

Sections of the website that made the top 10 list for viewing each month for the past 13 months, include our upcoming events (average 100 visits/month in 12 months on the top 10 list), ADVANCE Scholar program and mentoring information (average 53 visits/month in 13 months on the top 10 list), information about reports produced by the ADVANCE program (average 50 visits/month in the 10 months the page was on the top 10 list), and resources from our national conference in 2008 (average 51 visits/month in 11 months on the top 10
In addition, the resource page about the people in our program was on the top 10 list in all of the past 13 months (average 75 visits/month).

We continue to keep contact with the campus community through our monthly e-Updates. More than 200 faculty members and partners of ADVANCE receive reminders of our program services and upcoming events, through this initiative. It has been met with positive feedback, and our mailing list continues to expand. An archive of these updates is under our “Quick Links” on our homepage www.advance.iastate.edu.

In Year 4, ISU ADVANCE created a web page to feature resources that promote work-life balance. Administrative Fellow Dr. Mary Harris compiled a handbook (Appendix 2) of policies and guidelines for chairs and deans on flexible faculty careers. This handbook was presented at two workshops in November, one to chairs and deans and one to the ISU community. A bookmark (Appendix 5) was also created to highlight relevant websites for university faculty and staff. The handbook, as well as links to work-life resources on the Provost Office website, can be found on the ISU ADVANCE Work-Life web page www.advance.iastate.edu/worklife/worklife.shtml.

We continue to utilize Web CT as our internal electronic resource. We provide members of the ADVANCE Council access to our documents and materials developed by various individuals and committees, including meeting minutes, presentations and calendars.

ADVANCE created several resources for the campus community last summer, in preparation for our Year 3 Site Visit. We created a Fact Sheet (Appendix 6) that outlined our goals and major accomplishments in the first three years, as well as the future outlook for the ADVANCE Program. Our ADVANCE in a Nutshell (Appendix 7) document is a one page overview of what the ADVANCE Program is, as well as what we do within Iowa State’s campus. This document is meant to quickly introduce faculty members, who may not be familiar with our program, to what we are trying to accomplish in focal departments. A third document, ISU ADVANCE Success Stories (Appendix 8), breaks down our four goals, and discusses some of our success within our focal departments and colleges.

In light of a reduction of state-allocations to the University in Year 4, our ADVANCE Professor and Equity Advisor working group developed a brochure for colleges and departments, to help them make decisions while evaluating budgets and considering restructuring. Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program (Appendix 3) has been distributed to the Deans of five colleges, to the Big 12 Provosts, to many of our ADVANCE partners and has been posted to our website.

Articles and announcements about ADVANCE have appeared in a weekly publication for faculty and staff (Inside Iowa State), as well as in weekly email newsletters to colleges, including the Colleges of Agriculture & Life Sciences, Liberal Arts & Sciences, Engineering, Human Sciences, Veterinary Medicine, Design, Business and the Library.

C.4. Financial Management

We have established sound financial management practices with the assistance of staff in the Office of Sponsored Programs Administration and the Office of the Executive Vice President and Provost. Primary responsibility for day-to-day accounting is assumed by Nicol Jones, our Program Assistant. Dr. Bonnie Bowen, Executive Director, oversees all financial activity and regularly reports our financial status to the PI, the Steering Committee, and the
co-PI Team. Recommendations regarding allocation of funds are made by the Steering Committee, and the final responsibility for decisions lies with Dr. Susan Carlson, PI.

C.5. Formative Evaluation

C.5.A. ADVANCE Council retreat, May 2009

For the fourth year, the ISU ADVANCE Council held a half-day planning retreat to establish a theme, goals, and guiding principles for the year. The retreat was conducted with the recognition that a multi-faceted program like ISU ADVANCE needs to update plans and goals regularly and on a comprehensive basis. The retreat included a “review of the year” address from the PI, a review of Year 3 goals and accomplishments, a segment on assessment and evaluation (led by Dr. Kevin Saunders, assessment coordinator for the Executive Vice President and Provost’s Office), discussion of goals, priorities and a theme for the year, and planning for the August 2009 NSF site visit. We agreed to the Year 4 theme of “ADVANCE-ing Faculty: Pathways to Promotion and Leadership”—this theme has allowed us to focus on gathering and analyzing data about the situation of ISU’s associate professors (through the year 4 administrative fellow) and to facilitate the creation of a taskforce on departmental leadership.

In addition, we set seven goals for the year and retained six guiding principles, as follows:

Theme
ADVANCE-ing Faculty: Pathways to Promotion and Leadership

Goals for the Year

- Lead campus discussions of “pathways to promotion,” particularly in the promotion from associate to full professor. Build on prior annual goals in mentoring, faculty searches, and work/life. Use these activities to build leadership potential in STEM disciplines, in the department and at higher levels.
- Build mentoring support for faculty of color in STEM through campus conversations as well as support for individual faculty members in the Scholars Program. Use visiting scholars to bring visibility to underrepresented STEM faculty on campus. Strengthen mentoring for all STEM faculty at the college level.
- Build on dissemination of past years by training ADVANCE emissaries both on- and off-campus.
- Build strong Collaborative Transformation (CT) initiatives in nine focal departments and three colleges. Disseminate Round 1 and 2 findings and demonstrate progress-to-date in department action plans.
- Strengthen ADVANCE effectiveness in colleges through Equity Advisors and associate deans.
- Develop program evaluation plan to assess progress on goals
- Model the change we seek on campus.

Guiding Principles

- Sustainability
- Institutional Transformation
• Recruitment, retention, and advancement of a diverse STEM faculty
• Building on- and off-campus communities
• Building comprehensive, reliable, and innovative data sets
• Effective and well-planned communications

The theme, goals, and guiding principles were used regularly during the course of the year to set priorities and manage our workload.

C.5.B. ADVANCE Council meetings Year 4

The ADVANCE Council, which now has ~30 members, met four times during Year 4 (in addition to the Retreat mentioned above).

• During our first meeting, early in Fall semester, we discussed the site visit report, with a focus on the sustainability of ADVANCE initiatives and progress. The discussion included: (1) Role of the Council, (2) Role of the ADVANCE Professors in existing departments, (3) Role of the Equity Advisors, and (4) Role of the Deans & Chairs in extending Collaborative Transformation to new departments. We discussed the suggestions made in the Site Visit Report and how those suggestions could be implemented at Iowa State. Efforts that were identified as valuable included having the associate deans participate in the Council, having the ADVANCE Professors work closely with department chairs and possibly become permanent positions in departments after NSF funding ends, and having Equity Advisors provide training for department chairs.

• During the second meeting of Year 4, on November 16, 2009, we focused on the future of the Collaborative Transformation project at the department, college and university levels. We also reported on the conversation that Team members had with our External Advisors at the NSF PI Meeting. This Council meeting included a productive discussion and “brain-storming” session about ways to institutionalize the accomplishments of ADVANCE, especially in departments and colleges.

• The third Council meeting held during Year 4 was on January 21, 2010, shortly after the spring semester began. We reported on the status of the NSF site visit report and our responses to the questions for clarification. The Evaluation Plan and Logic Model had been completed and was shared with the Council. The major focus of our discussion at this meeting was on the status of our progress on Year 4 goals—especially goal 2—which is related to the issues raised by the site visit report.

Goal 2: Build mentoring support for faculty of color in STEM through campus conversations as well as support for individual faculty members in the Scholars Program. Use visiting scholars to bring visibility to under-represented STEM faculty on campus. Strengthen mentoring for all STEM faculty at the college level.

• We discussed the ways CT is supporting this goal at the department level. We recognize that there is still some ignorance in regard to subtle biases, and it would help to have subtle bias training for race.
• Some departments in the College of Liberal Arts and Sciences have actively recruited faculty of color to campus. A highly ranked department was successful, but a department that was not as competitive on the national level was not successful. Training of search committee chairs was conducted at the college level.
We discussed the value of recruitment, rather than just searching for new faculty. The chair has an important role because s/he is always recruiting. The chair is also involved in cultivating a community of URMs in departments.

- The final Council meeting of Year 4 was held on April 8, 2010. Members of the Council participated in a variety of programs and activities during Year 4, several of which were discussed briefly, such as the Chairs and Deans luncheon sponsored by the President and Provost, the Big 12 Workshop on Faculty Diversity, and the Midwest Regional ADVANCE meeting. Participation in these events provided evidence of the dissemination and influence of the Iowa State ADVANCE Program within our campus and regionally. This Council meeting also offered an opportunity to discuss the findings of our Faculty Fellow, who has analyzed ISU data on promotion from Associate to Full Professor. Dr. O’Connor’s data showed that the percentage of women who come to ISU as Full Professors (without an administrative appointment) is lower than for men. This led to a discussion about having endowed chairs to recruit full professor women faculty. Discussion included the following points: We need to look again at using endowed professor positions for recruitment. Although it is difficult to find fundraisers for endowed positions, we need to show how endowed professors affect students. The Council also had an opportunity to discuss the status of Collaborative Transformation in Round 1 and 2 departments and to begin thinking about the Retreat, which was planned for early May.

C.5.C. NSF Third Year Site Visit

During the 4th quarter of Year 3 and first half of Year 4, we prepared for, hosted, and responded to the NSF Site Visit Team. During early summer 2009, members of the co-PI team and the Equity Advisors were focused on preparing for the site visit, scheduled for early August. We met several times to plan and review the 6-page site visit report and the power point slides that we would present to the site visit team. Our discussions and planning sessions helped us focus on the strengths, weaknesses, and opportunities for sustainability of components of our program.

- During the first week of August, 2009, the ISU ADVANCE Program hosted the NSF Site Visit team. We had 75 faculty members and administrators participate in approximately 32 individual and group interviews. They represented ~32 departments and programs at ISU.
- We received the Site Visit Team’s Report from NSF September 15, 2009. During the next month we held several meetings of the co-PI team as we prepared our response, which was submitted October 23, 2009. While preparing our response we consulted with Equity Advisors, other member of the Council and the ISU leadership.
- In early December, the NSF Program Director asked for clarification regarding several aspects of our response to the Site Visit Team report. During December and January we worked on our reply, which focused on the logic model and evaluation plan, recruitment and retention of faculty from underrepresented minorities (URM), working with the Provost to address engagement of the deans in ADVANCE and changes in policy regarding the review and reappointment of department chairs.
- The responses that we provided will result in several new task forces and some shifts in focus for the ADVANCE Program. Throughout this report we
have included sections that describe these new initiatives and adjustments to our existing program.

**C.5.D. Evaluation Plan Development**

During Year 4 we continued working with an internal evaluation consultant, Dr. Kevin Saunders, to develop our evaluation plan. During the course of the year we completed a logic model and evaluation plan and we contracted with External Evaluators to conduct a summative evaluation in Year 5. We engaged in the following activities in Year 4:

- Prior to the Site Visit in August, 2009, we worked on the development of our evaluation plan, in collaboration with an internal evaluator from the Office of the Provost, Dr. Kevin Saunders. We discussed program evaluation with the entire Council at our May 2009 retreat and Executive Director Bowen had several meetings with Dr. Saunders to revise the evaluation plan based on those discussions. The plan was not complete enough to be reviewed by the co-PI team prior to the site visit. Drs. Bowen and Saunders, in consultation with PI Carlson, decided to delay sharing the evaluation plan with the site visit team until the co-PIs had reviewed it. In retrospect we still think this was the right decision, though the lack of a completed evaluation plan was a source of criticism by the site visit team.

- We received advice about the evaluation plan from discussions during the site visit and from the site visit team report. We modified our approach to program evaluation and worked during the fall semester to develop a Logic Model and formal Evaluation Plan: We completed the Logic Model, which contains outcomes broken out into time periods of the grant. The Evaluation Plan addresses the outcomes of the Logic Model and it is structured to identify components that have already been addressed, are in progress, and that need development. Through this process we determined that, in addition to the evaluation that Dr. Saunders will conduct, we need an external evaluator to help conduct interviews and synthesize the summative evaluation of the program. The Logic Model and Evaluation Plan were sent to NSF on January 15, 2010.

- During January and February, 2010, we developed a Request for Proposals, which was issued to potential external evaluators and was posted by ISU Purchasing. We received three excellent bids from experts who are familiar with ADVANCE programs. The contract for external evaluation was issued to Dr. Laura Kramer, who will be collaborating with Alice Hogan on the summative evaluation of our project.

- Drs. Bowen and Saunders are developing the list of materials that will be needed by Drs. Kramer and Hogan for their review, which will begin in June 2010.

- Drs. Saunders and Bowen are developing the components of internal evaluation that are part of the overall evaluation plan, including surveys of focal department faculty, stakeholders (administrators, deans, department chairs), and participants who have used the faculty search resources. We have recruited a graduate student to assist with the evaluation next year (Ms. Marilyn Cornish, Dept. of Psychology).
C.6. Consultations with External Advisors

In Year 4 we had two consultations with our External Advisors

Our first meeting occurred on October 29, 2009, at a breakfast meeting during the NSF PI Meeting in Alexandria, VA. Several members of the co-PI Team met with three of our External Advisors, Drs. Ronda Callister, Jackie Litt, and Claire Van Ummersen. Prior to the conversation we sent copies of the six-page summary of our program that we prepared for the site visit (Appendix 9), the site visit team report and the response that we sent to NSF in October 2009. Highlights of the conversation are reported here.

The Advisors had several suggestions for us, including clarifying the role of the deans and colleges in the project, clarifying the role of the college councils, and giving them a set of responsibilities in the program. In their opinion, we should integrate our work into the major college committees, including promotion & tenure. They also believe we should continue the discussion of how we interact with search committees, including distributing information on best practices. Regarding the role of the chair, they are concerned we don’t have much diversity among our department chairs, particular in gender representation. We also should continue to look for the best model of helping chairs do their work through training. They also suggested we continue to work with the Emerging Leaders Academy to develop new leaders and succession planning. With these recommendations we have pledged to put together a taskforce to look into the role of the chair in the university. Susan is currently taking a draft plan to various cabinets and committees. We will also work on developing additional partnerships around campus, including Equality Opportunity and Diversity and the Vice President for Research and Economic Development.

Our second meeting occurred by teleconference on May 5, 2010. Members of the co-PI Team and Steering Committee participated in a 45-minute conference call with all four of our External Advisors, Drs. Ronda Callister, Jackie Litt, Caroline Sotello Viernes Turner, and Claire Van Ummersen. Prior to the conversation we sent copies of the new synthesis report from Round 1 and Round 2 departments in the Collaborative Transformation project, the summary of our site visit report and responses, the logical model and detailed evaluation plan, the transitions document, and a brief description of the new SPISU (I^3) program that will continue after ADVANCE. The following topics were discussed and suggestions were provided:

**Progress on the Collaborative Transformation (CT) Project:**
- Status of current project
- Plans for expanding CT to non-focal departments

**Suggestions from the External Advisors were:**
- If you want to work with the Deans, you have to look to the Provost. The Deans work for the Provost. The Deans need to have to have a little pocket of money to work with on ADVANCE issues.
- When it comes to recruitment, publish the recruitment data for each college on campus every year. All of the sudden, people will want to find qualified women and minorities. Compare your campus data to national data as well.

**Preparing for Year 5 – sustaining components of the program and coordinating with other programs:**
- Ways to demonstrate success when our recruitment numbers do not show much progress, and we won’t be hiring more people in the near future.
Suggestions from the External Advisors were:

- If you’re concerned about the perception of your hiring numbers compared with your program goals you need to change your focus slightly. When the university is not hiring, make sure ADVANCE’s focus is on promotion.
- The strength of ISU is that you have open communication between the Faculty Senate and ADVANCE. You have a rapport among groups that you don’t highlight enough in your reports. You have the President and Provost on board, and the Deans in the focal colleges. The Deans making the commitment to resources for your Equity Advisors is a big step. Get testimony about the program from the chairs to take to administrators. Keeping the program as a whole program rather than breaking it up into the colleges should be the goal.

Update on our NSF Site Visit:

- We received excellent feedback from our NSF evaluators.
- Now much of our focus for Year 5 will be on sustainability.
- One new initiative is that we have developed a new taskforce in the Executive Vice President and Provost Office to focus on our lack of women in leadership positions.
- A second new initiative is that we will have a faculty fellow that will revise our search committee materials to include information on underrepresented minorities.

Suggestions from the External Advisors were:

- If your leadership taskforce wants to survey senior women, encourage interviews instead. You will receive more detailed information.
- Make sure in Year 5 to sustain your commitment and energy to the program, rather than working on too many new initiatives.
- Think about having a closing celebration that highlights what you’ve done as a program. Suggestions included having it at the president’s home, inviting deans and administrators, displaying posters highlighting key successes. Use the party as an opportunity to thank everyone and celebrate what you’ve learned.

C.7. Evaluation of Workshops and Networking Events

Workshops and Networking Events

There were 200 attendees at the four events we held in Year 4; 78 of these attendees indicated that the event was their first ADVANCE event. Most respondents at these events indicated that they would recommend future ADVANCE events to their colleagues.

ISU ADVANCE Workshop for Department Chairs – Promotion and Tenure at ISU: Strategies for Ensuring Equity
Date: 4/20/2009
This event had 37 attendees, 18 of whom filled out evaluation forms. About 8% of the participants had never attended an ADVANCE event prior to this workshop. The overview of the workshop was ranked 4.5 on a 5.0 scale. The opportunity to discuss promotion and tenure issues was ranked 4.6 on a 5.0 scale. The Reader’s Theatre presentation was ranked 4.7 on a 5.0 scale. Several people indicated that the role play in the Reader’s Theatre was an excellent vehicle to demonstrate issues with the promotion and tenure process.
Workshop on Resources for Chairs and Deans on Faculty Flexibility  
Date: 11/4/2009
This event had 45 attendees, 17 of whom filled out evaluation forms. About 45% of the participants had never attended an ADVANCE event prior to this workshop. The overview of the workshop was ranked 4.4 on a 5.0 scale. The opportunity to discuss flexibility issues was also ranked 4.4 on a 5.0 scale. The highest rating was whether department chairs would benefit from the information presented and discussed in the workshop (4.6). The lowest rating was for whether the information is important to the participant’s department (3.8). Several respondents indicated the open discussion portion of the workshop was not only the most valuable, but they would have liked to have more time. Several respondents also indicated that they gained strategies and ideas to take back and implement in their departments. About 87% of respondents indicated they would recommend ADVANCE events to their colleagues.

ISU ADVANCE Lunchtime Discussion on ISU Resources and Policies That Support Faculty Flexibility  
Date: 11/17/2009
This event had 22 attendees, 15 of whom filled out evaluation forms. About 41% of the participants had never attended an ADVANCE event prior to this workshop. The overview of the workshop was ranked 4.6 on a 5.0 scale. The opportunity to discuss flexibility issues was also ranked 4.6 on a 5.0 scale. The highest rating was for both whether department chairs would benefit from the information presented and discussed in the workshop, and whether the information was important to the University as a whole (4.9). The lowest rating was for whether the workshop was relevant in my role as a faculty member and/or administrator (4.2). Several respondents indicated they attended the workshop to gain a better understanding of what policies and resources were available to them. About 95% of respondents indicated they would recommend ADVANCE events to their colleagues.

ISU ADVANCE Workshop on Recruitment and Retention of Underrepresented Faculty in STEM: The Case of the Mathematical and Theoretical Biology Institute Summer Research Program  
Date: 2/23/2010
This event had 81 attendees, 54 of whom submitted evaluation forms. This workshop consisted of a presentation followed by a case study exercise. The majority of participants either agreed or strongly agreed (4.06 on a 5.0 scale) that the workshop content was relevant to their roles as faculty members, administrators, and/or students. The case study exercise was well received, and the majority of participants indicated that the exercise helped them to see ways that bias could occur in mentoring relationships (3.92). The evaluation item about whether the workshop had increased participants’ knowledge of underrepresented minority faculty in STEM received the lowest rating (3.55). This average rating is understandable since the majority of the presentation focused on an educational program (i.e., MTBI) for underrepresented students that holds promise for increasing the numbers of underrepresented STEM faculty. However, three-quarters of participants (75%) noted they would recommend ADVANCE events to their colleagues, and almost two-thirds (66%) indicated that their expectations for the workshop had been met. Examination of participant comments on the evaluation forms provided only limited insight into the numerical ratings and instead revealed a broad range of perspectives. As one example, a few participants indicated they did not understand how the MTBI program was relevant to increasing faculty of color in STEM while others described the workshop as an opportunity to engage in active learning and found the workshop insightful and informational.
ISU ADVANCE Workshop on Pathways to Advancement: Associate to Full Professor
Date: 3/29/2010
This event had 52 attendees, 30 of whom filled out evaluation forms. About 30% of the participants had never attended an ADVANCE event prior to this workshop. Respondents agreed that the content was relevant to their role as a faculty member (4.3/5.0 scale, the highest score received) and the information was useful (4.1/5.0). However, responses to the questions about whether the attendees expectations were met was lower (3.7/5.0 scale) than we typically see in other ADVANCE workshops. Nevertheless, 24/30 responded that they would recommend ADVANCE workshops to colleagues. The free response comments indicated that some of the attendees were expecting more concrete ideas, data, and handouts. Dr. O’Connor plans to prepare resources, which will be distributed in the fall, for Chair and Deans and for faculty. Attendees offered several useful suggestions for topics for future ADVANCE workshops.

C.8. COACHE survey second administration

During Year 4, the COACHE (Collaborative on Academic Careers in Higher Education) survey was administered to tenure-eligible faculty at ISU. Dr. Sandra Gahn, co-PI and Craig Chatriand, graduate assistant, prepared data for the survey which was administered in Fall 2009 by Harvard University. The response rate at ISU was 57%. The COACHE survey was previously administered at ISU in Fall 2005. ISU ADVANCE is using data from the COACHE survey as an indicator of changes in faculty satisfaction during the period of ADVANCE. Although we have not yet fully analyzed the responses from 2009, the COACHE staff has prepared a preliminary analysis that indicates faculty satisfaction has increased between 2005 and 2009, the period when ADVANCE has been active. According to COACHE staff: “(we) were just amazed at your results. I’m not sure if you realized it yet, but there was not a single item in the survey where your responses were significantly worse than the first administration and the number of areas of concern were generally low.” We will present a more complete comparison of changes in satisfaction of tenure-eligible faculty in an upcoming report.

C 9. Salary equity study, 2005-2008. The Salary Equity Study was finalized in 2009-10 and we worked with the EVPP and the Deans of LAS and Vet Med on issues identified in the study. The Executive Vice President and Provost has agreed that the study should be done regularly, perhaps every 2-3 years. The Executive Summary is reported here and the full study is provided as Appendix 10.

This report examined four years of faculty salary data at Iowa State University (2005-2008) to determine if significant salary differences existed by gender or race/ethnicity. This report was conducted for the ISU ADVANCE program and was supported by funding from the National Science Foundation.

The method of analysis used in this report included both single and two-equation multiple regression models to examine salary equity issues. All tenured and tenure-eligible faculty were included in this study with the exception of administrators and librarians. Data were analyzed within colleges (and college sub-categories in the case of the College of Liberal Arts and Sciences) in order to account for disciplinary differences in salary. It was not possible to analyze the data at the department level because the sample size would have been too small to meet the assumptions of multiple regression.
Key findings from this study include the following:

1. Statistically significant differences in salary by gender were found across all four years for faculty in LAS-Social Sciences and Veterinary Medicine.
2. The level of research productivity was a major factor in the salary differences by gender for Veterinary Medicine, but did not influence the level of significant difference in LAS-Social Sciences.
3. No statistically significant differences were found in faculty salaries by race/ethnicity.
4. No other colleges had statistically significant differences in salary by gender.

This report indicates the need to continue to examine salary equity issues at Iowa State University. We recommend that the Executive Vice President and Provost’s Office and individual college Deans continue to monitor salary equity in the future. Limitations of this study include the fact that productivity data were self-reported and did not account for the level of quality within productivity measures. The variables used in this study were limited to those that were available in administrative data systems and did not include sponsored funding measures, nor individual personnel decisions that might affect a faculty member’s salary.

C.10. Interpretation of Key Indicators

The ISU ADVANCE program has been using the Frehill, et.al., toolkit recommendations for institutional data going back to fall 2001. Dr. Sandra Gahn, a member of the ADVANCE ISU co-PI Leadership Team, is associate director in the Office of Institutional Research and has been tracking and reporting these indicator data for Iowa State University. Other contributors to analysis of the key indicators are Drs. Bonnie Bowen and Diane Debinski and Craig Chatriand, a graduate student funded by the ADVANCE program. The following charts and figures offer insight into the data collected at ISU in Years 1 – 4, which are reported in Section V. in more detail. We will continue to monitor these key indicators as the ISU ADVANCE Program progresses.
Tenured and Tenure-Eligible Faculty

The total number of tenured and tenure-eligible faculty at ISU has shown a decrease, from ~1390 in 2001 to ~1350 in 2009 with the lowest point in 2007 (Fig. 1 top). However, the total number of tenured and tenure-eligible STEM faculty has remained constant at just under 800 (Fig. 1 bottom).

**Figure 1. Number of Tenured and Tenure-Eligible Faculty at ISU and in STEM, 2001-2009**

During this time, the percentage of women faculty at ISU has shown a modest increase, from 26% in 2001 to 29% in 2009 (Fig. 2). In STEM departments, the percentage of women increased from 15.6% to 19.1% and in SBS (Social and Behavioral Science) departments, the percentage of women also increased, from 40.2% to 44.5% (Fig 2).

**Figure 2. Percentage of Tenured and Tenure-Eligible Women Faculty by Discipline, 2001-2009**
This increase in the percentage of women during a time when the total number of faculty has decreased (Fig. 1) has been accompanied by a slight increase in the total number of women faculty at ISU (from 360 in 2001 to 388 in 2009) and in the number of women in STEM departments (from 122 to 150) (Fig. 3). Note that the number of women in SBS departments declined from 103 to 97 between 2001 and 2009 (Fig. 3).

Similarly, both the percent (Fig. 4) and the number (Fig. 5) of full and associate professors at Iowa State who are women has increased. The percent and the number of ISU assistant professors who are women have both decreased slightly, which may indicate that fewer women have been hired as assistant professors while current assistant professors have been promoted (Figs. 4 and 5).

![Figure 3. Number of Tenured and Tenure-Eligible Women Faculty by Discipline, 2001-2009](image)

![Figure 4. Percent Tenured and Tenure-Eligible ISU Women Faculty by Rank, 2001-2009](image)
With respect to women faculty in STEM, we have observed an overall increase in numbers and percentages of associate and full professors, and we have observed an increase in the number of women faculty hires in STEM. Both the percent (Fig. 6) and the total number (Fig. 7) of tenured women faculty in STEM has increased from 2001-2009. The number of women assistant professors in STEM has increased (Fig. 7), though the percentage of women assistant professors in STEM has decreased (Fig. 6).
It is important to note that the STEM tenured and tenure-eligible faculty at ISU have shown similar trends in rank to the overall university, but the number of full and associate professors who are STEM women has shown an even larger increase than the number of full and associate professor women in the overall university (Figs. 7 and 5). STEM women who are full professors increased from 30 to 49 (a 63% increase over eight years) and women who are associate professors increased from 43 to 55 (a 28% increase over eight years). Assistant professors in STEM have remained relatively constant in number, at just under 50 individuals (Fig 7).

With respect to hiring, the number of women new hires has varied, but it peaked for STEM in 2009 when 16 new hires in STEM were women (Fig. 8). During 2009 the percent women new hires in STEM exceeded the percent women faculty hires at the university (Fig. 9).
Figure 9. Percentage of Tenured and Tenure-Eligible Women New Hires in STEM and ISU, 2001-2009

An analysis of the percent of ISU faculty by rank shows that the percent of full professors that are women is much lower than the percent that are men in both ISU and STEM (Fig. 10). This trend is opposite for non-tenure eligible (NTE) faculty. The percent of NTE professors that are women is much higher than the percent that are men in both ISU and STEM. Fewer differences are evident at the assistant an associate professor level. These percentages have also shown very little change over the past five years, 2005-2009 (data not shown).

Figure 10. Percent of ISU women and men by rank at ISU and in STEM. Non-Tenure Eligible (NTE) faculty are included.

Our examination of women in leadership is based on data for 2006-2009 and is focused on several categories of leaders. We found that several of these categories did not change appreciably over the past four years (Fig. 11), notably the number of deans, department heads and endowed, named, distinguished and university professors. In comparing theses classes of leaders, the percentage of women deans has been consistently higher than the percentage of women full professors (also shown) and even higher than the percentage of
women faculty at ISU during all four years. On the other hand, the percentages of women department heads and endowed, named, distinguished and university professors have been consistently lower than the percentage of women full professors. These areas of leadership and recognition remain areas that need improvement at Iowa State.

**Figure 11. Percent of ISU Women in Leadership Positions for Which Frequency Did Not Change 2006-2009.**

Two other areas of leadership have varied during the four years we examined (Fig. 12). The percentage of associate deans who are women has increased from 25-40%, during a time when the percentage of women full professors was constant. In addition, the percentage of women associate deans is higher than the percentage of women full professors. The percentage of women center directors has varied. It was highest in 2007, then decreased in 2008 and 2009. In general, it was similar to the percentage of women full professors.

**Figure 12. Percent of ISU Women in Leadership Positions for Which Frequency Was Variable 2006-2009.**
D. DISSEMINATION (INCLUDING LIST OF PRODUCTS AVAILABLE)

ISU ADVANCE has made significant scholarly and research contributions to various disciplinary communities during Year 4. This section is organized by the following types of dissemination:

- Journal Articles
- Other one-time publications, such as technical reports
- Internet dissemination
- Conference presentations
- ISU ADVANCE poster Displays at Disciplinary and ADVANCE Conferences
- Presentations to STEM Departments and Colleges at Iowa State University
- Presentations to ADVANCE partner groups
  - Deans, college cabinets and other leaders
  - ADVANCE College-Level Advisory Groups and Partners
  - College-level Faculty Networking
  - ISU Diversity Partner Discussions
- Interactions Outside ISU
- List of products available
  - Resources for Faculty Recruitment
  - Reports from the AAUDE Faculty Satisfaction Survey
  - Reports from the Collaborative Transformation Project
  - Additional Reports Produced for Departments (not available to the public)
  - Other Resources Available on the ADVANCE Web site

Journal Articles:

Author: **President Gregory Geoffroy**
Publication: *The Presidency*
Article Title: Preparing for the Faculty of 2050 at Iowa State University
Publication Date: Winter 2010
Subject: Addressing the need to recruit and retain high-quality faculty, and the ADVANCE Program

Author: **Drs. Sharon R. Bird, Karla A. Erickson**
Publication: *Teaching Sociology*
Publication Date: April 2010
Subject: Using case studies to teach about issues of subtle bias for women in STEM professions.

Other one-time publications, such as technical reports

Author: **Bird, S. R., Rhoton, L., Fehr, C., Larson, L. M.**
Title: “ISU ADVANCE Collaborative Transformation Project: Rounds 1 & 2 – Focal Department Synthesis Report”
Date: April 2010
Bibliographic Info: 16 pages, Ames, IA: Iowa State University ADVANCE Institutional Transformation Program
Status (published, accepted awaiting publication, submitted under review): Published
Is NSF support formally acknowledged in the publication? Yes
Author: **Fehr, C.**  
Title: *ISU ADVANCE Focal Department Report: Animal Science*  
Date: 2009  
Bibliographic Info: Ames, IA, Iowa State University, ISU ADVANCE Program  
Status (published, accepted awaiting publication, submitted under review): Published  
Is NSF support formally acknowledged in the publication? Yes

Author: **Larson, L. M.**  
Title: *ISU ADVANCE Focal Department Report: Civil, Construction and Environmental Engineering*  
Date: 2009  
Bibliographic Info: Ames, IA, Iowa State University, ISU ADVANCE Program  
Status (published, accepted awaiting publication, submitted under review): Published  
Is NSF support formally acknowledged in the publication? Yes

Author: **Bird, S.R.**  
Title: *ISU ADVANCE Focal Department Report: Chemistry*  
Date: 2009  
Bibliographic Info: Ames, IA, Iowa State University, ISU ADVANCE Program  
Status (published, accepted awaiting publication, submitted under review): Published  
Is NSF support formally acknowledged in the publication? Yes
Conference Presentations

Presenters:  **Drs. Sharon Bird, Laura Rhoton**  
Title of Talk:  *Gender Strategies of Women Scientists in Academia: Finding Common Ground for Action or Perpetuating Divisions?*  
Conference:  Southern Sociological Society Meetings  
April 1-4, 2009, New Orleans, LA

Presenters:  **Dr. Susan L. Carlson**  
Title of Talk:  *Re-fashioning Careers for STEM Faculty*  
April 2-4, 2009, San Diego, CA  
Other Presenters:  Drs. Diana Bilimoria (Case Western Reserve University), Patricia Hyer (Virginia Tech), Cathy Trower (COACHE, Harvard University)

Presenters:  **Dr. Susan L. Carlson**  
Title of Talk:  *An Integrated Approach to Faculty Success and Retention at Iowa State University*  
Conference:  Western Academic Leadership Forum  
April 24, 2009, Anchorage, AK

Presenters:  **Drs. Florence A. Hamrick, Sandra W. Gahn**  
Title of Talk:  *Faculty Attitudes Toward Alternate Tenure Policies: Assessing Department Cultures*  
Conference:  Associate for Institutional Research (AIR) Annual Forum  
May 30-June 3, 2009, Atlanta, GA

Presenters:  **Drs. Kristen Constant, Sharon Bird**  
Title of Talk:  *Recognizing, Characterizing and Combating Unintended Bias in the Faculty Search Process in Engineering*  
Conference:  American Society for Engineering Education Conference  
June 14-17, 2009, Austin, TX

Presenters:  **Dr. Jo Anne Powell Coffman**  
Title of Talk:  *The National Science Foundation: Funding Opportunities, Evaluation Criteria and Successful Strategies (organized workshop)*  
Conference:  17th annual C. elegans Meeting  
June 24-28, 2010, Los Angeles, CA  
Other Presenter:  Dr. Aixa Alfonso, NSF Program Office

Presenters:  **Drs. Susan L. Carlson, Sandra Gahn, Mary Harris, Elizabeth Hoffman**  
(ISU Provost)  
Title of Talk:  *New Norms, New Strategies: Balancing Work and Life in the Academy*  
Conference:  Way Up Conference  
November 5, 2009, West Des Moines, IA

Presenters:  **Dr. Bonnie Bowen**  (co-chair of symposium)  
Title of Talk:  *The History of Women in North American Ornithology*  
Conference:  COS/AOU/SCO Meeting  
February 7-11, 2010, San Diego, CA  
Other Presenter:  Dr. Kim Sullivan, Utah State University
Presenter: **Dr. Carla Fehr**  
Title of Talk: *Understanding and Addressing Discrimination in the Workplace*  
Conference: Iowa State PWISE Leadership Conference  
March 2010, Ames, IA  
Other Presenters: Ana Prokos (Sociology)

Presenter: **Dr. Carla Fehr**  
Title of Talk: *The Benefits of Diversity for Scientific Communities*  
Conference: Women in Science Conference  
March 5, 2010, University of Indiana, Bloomington, IN

Conference: Big 12 Workshop on Faculty Diversity  
April 25-26, 2010, Lawrence, KS

Attendees: **Drs. Bonnie Bowen, Susan Carlson, Carla R. Espinoza** (Associate Vice President, Human Resources Services and Director, Equal Opportunity & Diversity), **Jake Petrich** (Chair of Chemistry), **Annette O’Connor, Jo Anne Powell-Coffman** (former AP in GDCB; member of Emerging Leaders Academy).

Presenters:  
**Dr. Annette O’Connor**  
Title: *Transitioning from Associate to Full (Panel Discussion)*  

**Dr. Susan L. Carlson**  
Title: *Session for Team Leaders and Provosts (Panel Discussion)*  

**Dr. Carla R. Espinoza**  
Title: *How to Recruit and Retain Minority Faculty (Panel Discussion)*

Presenter: **Dr. Sharon Bird**  
Title of Talk: *Research and ADVANCE IT Awards*  
Conference: Pacific Sociological Association Meeting  
April 7-11, 2010, Oakland, CA

**ISU ADVANCE Poster Displays at Disciplinary and ADVANCE Conferences**

**NSF Joint Annual Meeting, Washington, DC**  
June 8-11, 2009  
ADVANCE personnel: Carlson, Bird, Bowen, Debinski, Fehr, Gahn, Hamrick  
*iowa State University ADVANCE Program: An Innovative Approach to Advancing Women in Faculty in STEM Fields*

**American Ornithologists’ Union Meeting, Philadelphia, PA**  
August 12-15, 2009  
ADVANCE personnel: Bowen, Debinski, Janzen  
*Assessing and Improving the Climate for Women Scientists at the Departmental and Institutional Levels Through the Iowa State University ADVANCE Program*

**NSF PI Meeting, Alexandria, VA**  
October 29-30, 2009  
ADVANCE personnel: Carlson, Bird, Bowen, Debinski, Fehr, Gahn, Hamrick, Constant  
*iowa State University ADVANCE Program’s Connections with Professional Societies*
Discussions and informal presentations outside ISU

Council/Team Member: **Dr. Kristen Constant**
Interaction: Email and telephone conversations with Dr. Karen Horton, University of Maine, about their ADVANCE Proposal
Date: Fall 2009

Council/Team member: **Dr. Jo Anne Powell-Coffman**
Interaction: Dr. Powell-Coffman spoke at in the *Women of ADVANCE Colloquium* series. She gave a scientific presentation and also participated in a lunch with Women in Biology.
Location: Boston University
Date: November 2009

Council/Team member: **Dr. Susan Carlson**
Presentation: *An Architecture for Institutional Transformation: People and Policy, Data and Dissemination.*
Interaction: Member of ADVANCE IT Program’s External Advisory Board
Location: North Dakota State University
Date: August 2009

Council/Team member: **Dr. Susan Carlson**
Interaction: Member of ADVANCE PAID Program’s External Advisory Board
Location: University of New Hampshire

Council/Team member: **Dr. Susan Carlson**
Interaction: Consultation on preparation of ADVANCE proposal
Location: Lehigh University

Council/Team member: **Dr. Flo Hamrick**
Location: Conference calls
Interaction: Member of ADVANCE Portal Advisory Committee to review Portal website iterations and give feedback on design, functionalities, and content.
Names: Dr. Peggy Layne (Virginia Tech), Dr. Lisa Frehill (Commission on Professionals in Science and Technology), Dr. Jennifer Sheridan (University of Wisconsin – Madison), Dr. Diana Bilimoria (Case Western Reserve University), Dr. Kim Sullivan (Utah State University), Dr. Nancy Steffen-Fluhr (New Jersey Institute of Technology), Dr. Barbara Ryder (Rutgers), Dr. Laura Kramer
Date: October 2008 – July 2009

Council/Team member: **Dr. Sharon Bird**
Interaction: Member of ADVANCE IT Program’s (CEOS) External Advisory Board
Location: The Ohio State University
Names: Dr. Joan Herbers, Dr. Jill Bystydzienki, Dr. Mary Juhas, Dr. Anand Desai, Dr. Anne Massaro, Dr Carolyn Merry, and Dr. Susan Williams
Date: June 21-23, 2009
Council/Team member: Dr. Sharon Bird and Dr. Bonnie Bowen
Interaction: Phone conference call with grant preparation team at West Virginia University
Location: Ames, Iowa
Names: Dr. Kasi Jackson and proposal writing team
Date: October 13, 2009

Council/Team member: Dr. Sharon Bird
Interaction: Informal meeting with Research Directors of ADVANCE IT Programs at Cornell University, Kansas State, Northeastern, Rutgers, The Ohio State University, University of Nebraska-Lincoln, Washington State, and PAID Research Directors at Ohio University and University of Missouri.
Location: Washington D.C. ADVANCE/PAID PI meeting
Names: Dr. Kim Weeden (Cornell University), Dr. Julia McQuillan (University of Nebraska – Lincoln), Dr. Jill Bystydzienski (The Ohio State University), Dr. Dana Britton (Kansas State University), Dr. Katrina Zippel (Northeastern University), Dr. Pat Roos (Rutgers), Dr Amy Wharton (Washington State University), Dr. Jackie Litt (University of Missouri) and Dr. Cindy Anderson, (Ohio University)
Date: October 29-31, 2009

Council/Team member: Dr. Sharon Bird
Interaction: Meeting with Research Directors of ADVANCE IT and PAID Programs at Kansas State University, Northeastern University, University of Nebraska-Lincoln, Ohio University and University of Missouri.
Location: Santa Barbara, CA, meeting of the Sociologists for Women in Society
Names: Dr. Julia McQuillan (University of Nebraska – Lincoln), Dr. Dana Britton (Kansas State University), Dr. Katrina Zippel (Northeastern University), Dr. Jackie Litt (University of Missouri) and Dr. Cindy Anderson (Ohio University), and Dr. Laura Kramer
Date: February 4-7, 2010

Council/Team member: Dr. Sharon Bird
Interaction: Meeting with researchers of ADVANCE IT Programs at Kansas State, University of Nebraska-Lincoln, and Washington State, and with other social scientists interested in preparing NSF ADVANCE IT proposals.
Location: Oakland, CA, meeting of Pacific Sociological Society
Names: Dr. Christina Falci (University of Nebraska – Lincoln), Dr. Dana Britton (Kansas State University), and Dr. Amy Wharton (Washington State University)
Date: April 7-10, 2010

Council/Team member: Drs. Bonnie Bowen and Diane Debinski
Interaction: Provided consultation on preparing a proposal for IT competition (telephone).
Names: Dr. Michelle Miller, Southern Illinois University
Date: August 2009

Council/Team member: Dr. Bonnie Bowen
Interaction: Discussion of planning for 3rd year site visit in preparation for JAM presentation by Rinehart (email and phone)
Names: Dr. Jan Rinehart, Rice University ADVANCE
Date: April 2010
Council/Team member: **Dr. Bonnie Bowen**  
**Interaction:** Provided methods for salary analysis developed by Dr. Sandra Gahn and Jason Pontius (email)  
**Names:** Dr. Suzanne Zurn Birkhimer, Purdue University ADVANCE  
**Date:** March 2010

Council/Team member: **Dr. Bonnie Bowen**  
**Interaction:** Reviewed research proposals for internal grant competition for NDSU ADVANCE  
**Names:** North Dakota State University ADVANCE program  
**Date:** November 2009

Council/Team member: **Dr. Bonnie Bowen**  
**Interaction:** Shared information about external evaluators and 3rd year site visit (email and phone)  
**Names:** Dr. Gretal Leibnitz, Washington State University  
**Date:** Throughout Year 4

Council/Team member: **Dr. Bonnie Bowen**  
**Interaction:** Shared information about 3rd year site visit and progress on our programs (email and phone)  
**Names:** Dr. Linda Siebert, University Illinois Chicago ADVANCE  
**Date:** Throughout Year 4

Council/Team member: **Dr. Bonnie Bowen**  
**Interaction:** Gave permission to use our search resources material at Northeastern University  
**Names:** Northeastern University ADVANCE  
**Date:** December 2009

Council/Team member: **Dr. Mary Harris**, Faculty Fellow  
**Interaction:** Email and telephone consultation regarding modification of UC Berkeley’s handbook and development of ISU’s handbook on family friend policies  
**Names:** Dr. Karie Frasch, UC Berkeley Family Friendly Edge  
**Date:** Throughout 2009

**Presentations to STEM Departments and Colleges at Iowa State University**

**Presenters:** **Drs. Jan Thompson, Carla Fehr**  
**Title:** Welcome to ADVANCE for Plant Pathology Faculty  
**Date:** October 16, 2009

**Presenters:** **Drs. Kristen Constant, Susan L. Carlson**  
**Presentation:** Meeting with Aerospace Engineering Chair Search Committee  
**Date:** August 28, 2009

**Presenters:** **Drs. Kristen Constant, Susan L. Carlson**  
**Presentation:** Meeting with Electrical and Computer Engineering Chair Search Committee  
**Date:** September 2009

**Presenters:** **Drs. Kristen Constant, Susan L. Carlson**  
**Presentation:** Meeting with Mechanical Engineering Chair Search Committee  
**Date:** September 3, 2009
Presenter: **Dr. Lisa Larson**  
Presentation: Co-led Search Committee Training with Dean Michael Whiteford  
September 22, 2009  

Presenters: **Drs. Kristen Constant, Lisa Larson, Jan Thompson**  
Presentation: *Meeting with ADVANCE Focal Department Chairs*  
December 11, 2009  

Presentation: **A Program of Institutional Transformation to Make Iowa State University an Optimal Environment for All Faculty**  
Audience: Non-focal department faculty meetings  
- Aerospace Engineering (April 2, 2009), **Drs. Kristen Constant, Shauna Hallmark**  
- Industrial and Manufacturing Systems Engineering (April 2, 2009), **Drs. Kristen Constant, Shauna Hallmark**  
- Educational Leadership and Policy Studies (April 8, 2009), **Drs. Lisa Larson, Flo Hamrick**  
- Electrical and Computer Engineering (April 10, 2009), **Drs. Kristen Constant, Shauna Hallmark**  
- Psychology (April 13, 2009), **Drs. Lisa Larson, Jo Anne Powell-Coffman**  
- Mechanical Engineering (April 16, 2009), **Drs. Kristen Constant, Shauna Hallmark**  
- Plant Pathology (April 17, 2009), **Drs. Jo Anne Powell-Coffman, Sharon Bird**  
- Natural Resource Ecology and Management (April 20, 2009), **Drs. Jan Thompson, Diane Debinski**  
- Agricultural and Biosystems Engineering (April 24, 2009), **Drs. Kristen Constant, Shauna Hallmark**

Presentations to ADVANCE partner groups

**Deans, college cabinets and other leaders:**

Discussant: **Dr. Jan Thompson**  
Audience: *College of Agriculture & Life Sciences Promotion & Tenure Workshop*  
April 2, 2009, April 9, 2009  
Discussant: **Drs. Jan Thompson, Diane Debinski**  
Audience: *College of Agriculture & Life Sciences Promotion & Tenure Mirroring Session*  
April 16, 2009, April 22, 2010  
Discussant: **Dr. Lisa Larson**  
Audience: *College of Liberal Arts & Sciences Promotion & Tenure Committee*  
Discussant: **Dr. Jan Thompson**  
Audience: *College of Agriculture & Life Sciences Deans Cabinet Meeting*  
Discussant: **Dr. Lisa Larson**  
Audience: *College of Liberal Arts & Sciences Diversity Committee*  
Discussant: **Dr. Lisa Larson**  
Audience: *Meeting with Associate Dean David Oliver*  
February 22, 2010
Discussant: **Dr. Kristen Constant**  
Audience: *Meeting with Dean Jonathan Wickert*  
April 7, 2010

Discussants: **Drs. Kristen Constant, Bonnie S. Bowen, Susan L. Carlson, Shauna Hallmark, Ralph Napolitano**  
Audience: *Orientation for new Dean Jonathan Wickert*  
August 24, 2009

Discussant: **Drs. Kristen Constant, Sharon Bird, Lisa Larson, Jan Thompson**  
Audience: *President & Provost’s Chairs Luncheon (ADVANCE Presentation)*  
April 26, 2010

Discussant: **Dr. Susan Carlson**  
Audience: *Greenlee School of Journalism and Mass Communication*  
Topic: *Diversity and collegiality*  
April 2, 2010

Discussant: **Drs. Susan Carlson and Elizabeth Hoffman** (ISU Provost)  
Audience: *Promotion and Tenure Committees, Department Chairs and Deans in the Colleges of Liberal Arts and Sciences, Agriculture and Life Sciences, Veterinary Medicine, Human Sciences, and the Library.*  
Drs. Carlson and Hoffman used the associate to full professor data prepared by Dr. O’Connor to discuss promotion to full professor with the Deans and Chairs.  
5 meetings in March and April 2010

Discussants: **Drs. Susan Carlson and Bonnie Bowen**  
Audience: *Faculty Development Workshop sponsored by the Vice President for Research and Economic Development*  
Topic: *Broader Impacts in NSF grant proposals*  
October 26, 2009

**ADVANCE College-Level Advisory Groups and Partners**

Audience: *College of Agriculture & Life Sciences – Liberal Arts & Sciences College Leadership Council*  
Discussants: **Drs. Jan Thompson, Adam Bogdanove, Bonnie S. Bowen, Diane M. Debinski, Alan Goldman, Mark Gordon, Lisa Larson, Elisabeth Lonergan, Jo Anne Powell-Coffman, Jim Raich, Steve Rodermel**  
October 20, 2009, April 28, 2010

Audience: *College of Engineering Cabinet*  
Discussants: **Dr. Kristen Constant**  

Audience: *College of Agriculture and Life Sciences Senior Women Faculty Meeting*  
Discussants: **Drs. Jan Thompson, Bonnie S. Bowen**  
April 7, 2009

**College-Level Faculty Networking**  
Title: *College of Engineering Women’s Lunchtime Discussion*  
Discussant: **Dr. Kristen Constant**  
March 4, 2010
ISU Diversity Partner Discussions

Title: Meeting with Carla Espinoza, Human Resource Services, on harassment issues
Discussants: Drs. Sharon Bird, Bonnie Bowen, Lisa Larson, Jan Thompson
Date: May 27, 2009

Title: Meeting with Carla Espinoza and Francesca Gallaraga, Human Resource Services, on data for faculty searches
Discussants: Co-PI Team and Equity Advisors
Date: March 22, 2010

Title: FIRES—Faculty Initiatives to Recruit and Retain Excellence in STEM
Discussants: Drs. Bonnie Bowen, Susan Carlson, Florence Hamrick, Ms. Trina Ramirez and faculty from ISU campus.
Date: November 2009, January and April 2010.

Title: Grant writing team for I3 proposal
Discussants: Drs. Bonnie Bowen, Susan Carlson (from ADVANCE) with Dr. Adin Mann, Sharron Quisenberry, and Chitra Rajan
Date: July-August 2009, November 2009-April 2010

List of Products Available

Resources and reports available on the Iowa State University ADVANCE website during Year 4 include resources for flexible faculty careers, a brochure addressing university transitions during budget restructuring, and products from the Collaborative Transformation Project.

Reports from the Collaborative Transformation Project

Additional Reports Produced for Departments (not available to the public)

Resources available on the ISU ADVANCE website
- Bookmark, Iowa State University Work/Life Resources (Appendix 5 in Year 4 Annual Report)
- Brochure, Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program. March 2010 (Appendix 3 in Year 4 Annual Report)
- ISU ADVANCE Program Goals, Year 4 (Appendix 11 in Year 4 Annual Report)
- ISU ADVANCE Fact Sheet, fall 2009 (Appendix 6 in Year 4 Annual Report)
- ISU ADVANCE In a Nutshell, fall 2009 (Appendix 7 in Year 4 Annual Report)
- ISU ADVANCE Success Stories, fall 2009 (Appendix 8 in Year 4 Annual Report)
SECTION IV. PERSONNEL AND FINANCIAL REPORT

A. PERSONNEL — RESPONSIBILITIES OF FACULTY AND STAFF SUPPORTED BY THE GRANT

Iowa State received the ADVANCE-Institutional Transformation award on 28 August 2006. Our year runs from 1 August to 31 July. Our Year 3 report contained financial information from 1 May 2008 through 31 March 2009, with projections of our finances through 31 July 2009. This Year 4 report contains the final financial report from Year 3 (through 31 July 2009) and financial information for Year 4 from 1 August 2009 through 30 April 2010, with projections through 31 July 2010.

The ISU ADVANCE Program has a co-PI Leadership Team of 7 Senior Personnel listed in the Year 4 report. These include:

- Principal Investigator (Carlson),
- 4 faculty listed as co-PIs with NSF (Bird, Bowen, Debinski and Fehr),
- 2 additional faculty/staff listed as co-PIs in the ISU system (Gahn and Hamrick)

In addition, we have partners at the college level (Deans/Associate Deans and Equity Advisors) and department level (ADVANCE Professors), who serve on the Council. Some of these partners receive funds from the grant.

Detailed descriptions of the responsibilities and accomplishments of our participants are described in Section II-B and in the Participants section of Fast Lane.
Section V: Report of Key indicators

During Year 4 we continued to monitor the eight key indicators and added to the tables that were created last year. ISU Co-PI Team member, Dr. Sandra Gahn led the effort to compile the data from 2001-2009. The tables that follow provide an extension of the data presented in the previous Annual Reports. These key indicators continue to provide valuable data for the assessment of the impact of the institutional transformation being undertaken by the ADVANCE Program.

Below we provide the eight indicator tables. Charts and figures for some of these tables appear in sub-section C.10 of Section III. We continue to divide the ISU departments into three disciplines, STEM (science, technology, engineering and mathematics), SBS (social and behavioral sciences) and HBD (humanities, business, and design). Most tables are aggregated by discipline. We have aggregated data by department, where appropriate. For Tables 3 and 4, dealing with tenure and promotion review, we have aggregated data by colleges and by discipline. Tables that are aggregated by department are not aggregated by college, because of the complexity of departments that are administered jointly by two colleges.
Table 1. Number and Percent of Women Tenured and Tenure Track Faculty by Rank, Department, and Discipline 2009

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Full</th>
<th>Assoc</th>
<th>Asst</th>
<th>Total</th>
<th>Full</th>
<th>Assoc</th>
<th>Asst</th>
<th>Total</th>
<th>Percent Women</th>
</tr>
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<td>STEM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>23</td>
<td>0.0%</td>
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<td>STEM</td>
<td>0</td>
<td>2</td>
<td>0</td>
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<td>12</td>
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<td>2</td>
<td>8</td>
<td>31</td>
<td>7</td>
<td>5</td>
<td>43</td>
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<td>Biochemistry, Biophysics, &amp; Molecular Biology</td>
<td>STEM</td>
<td>3</td>
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<td>1</td>
<td>5</td>
<td>13</td>
<td>1</td>
<td>4</td>
<td>18</td>
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<tr>
<td>Biomedical Sciences</td>
<td>STEM</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>6</td>
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<td>Chemistry &amp; Biological Engineering</td>
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<td>5</td>
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<td>10</td>
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<td>24</td>
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<td>0</td>
<td>4</td>
<td>9</td>
<td>8</td>
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<td>23</td>
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<tr>
<td>Ecology, Evolution, &amp; Organismal Biology</td>
<td>STEM</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>9</td>
<td>7</td>
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<td>Electrical &amp; Computer Engineering</td>
<td>STEM</td>
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STEM Totals | STEM | 49 | 55 | 47 | 151 | 350 | 168 | 130 | 648 | 12.3% |

Iowa State University ADVANCE Program
Year 4 2009-2010 for Public Distribution

67
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Table 2. Number and Percent of tenure track and non-tenure-eligible faculty by gender, department, and discipline for 2009

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<th>%Women</th>
<th>Tenured &amp; Ten-Track</th>
<th>Total</th>
<th>Women</th>
<th>%Women</th>
<th>Non-tenure-eligible</th>
<th>Non-tenure-eligible Women as % All Women</th>
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<td>37.5%</td>
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<td>10.0%</td>
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<td>27.3%</td>
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<td>0.0%</td>
<td>0.0%</td>
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<td>1</td>
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<td>15.4%</td>
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<td>10.0%</td>
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</tr>
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</tr>
<tr>
<td>Philosophy &amp; Religious Studies</td>
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<td>7</td>
<td>1</td>
<td>14.3%</td>
<td>11.1%</td>
<td>33.3%</td>
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<td>15</td>
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<td>9</td>
<td>6</td>
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<td>28.6%</td>
<td>30.0%</td>
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<td><strong>University Totals</strong></td>
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<table>
<thead>
<tr>
<th>Tenured &amp; Ten-Track</th>
<th>Non-tenure-eligible</th>
<th>Non-tenure-eligible Men as % All Men</th>
<th>Non-tenure-eligible Women as % All Women</th>
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<tbody>
<tr>
<td>1346</td>
<td>388</td>
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### Table 3. Tenure Review Outcomes 2009

#### STEM Disciplines

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<td>Male</td>
<td>Total</td>
<td>Female</td>
<td>Male</td>
<td>Total</td>
</tr>
<tr>
<td>Agriculture &amp; Life Sciences</td>
<td>3</td>
<td>3</td>
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<td>3</td>
<td>3</td>
<td>6</td>
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<td>1</td>
<td>0</td>
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<tr>
<td>Liberal Arts and Sciences</td>
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<td>11</td>
<td>14</td>
<td>3</td>
<td>9</td>
<td>12</td>
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<tr>
<td>Veterinary Medicine</td>
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<td>2</td>
<td>3</td>
<td>1</td>
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<td>3</td>
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<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td><strong>23</strong></td>
<td><strong>31</strong></td>
<td><strong>8</strong></td>
<td><strong>21</strong></td>
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#### SBS Disciplines

<table>
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<tr>
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<tbody>
<tr>
<td></td>
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<td>Male</td>
<td>Total</td>
<td>Female</td>
<td>Male</td>
<td>Total</td>
</tr>
<tr>
<td>Agriculture &amp; Life Sciences</td>
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<td>0</td>
<td>0</td>
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<td>Liberal Arts and Sciences</td>
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<td>4</td>
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#### HBD Disciplines

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<td>Total</td>
<td>Female</td>
<td>Male</td>
<td>Total</td>
</tr>
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<td>5</td>
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<td>Library Services</td>
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<td>1</td>
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</tr>
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<td><strong>9</strong></td>
<td><strong>14</strong></td>
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<td><strong>13</strong></td>
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</tbody>
</table>

Note: STEM refers to Science Technology, Engineering & Math; SBS refers to Social & Behavioral Sciences; HBD refers to Humanities, Business & Design

One male in Engineering was granted a two-year extension

These numbers reflect tenure review outcomes that were submitted to the Executive Vice President & Provost Office.

Source: Office of Institutional Research
Table 4. Promotion to Full Professor Review Outcomes 2009

<table>
<thead>
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<th>STEM Disciplines</th>
<th>House Female</th>
<th>Male</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
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<td>9</td>
<td>2</td>
<td>7</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Liberal Arts and Sciences</td>
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<td>5</td>
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<tr>
<td>Veterinary Medicine</td>
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<td>0</td>
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<td>0</td>
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<td>0</td>
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<th>Total</th>
<th>Female</th>
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<th>Total</th>
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<th>Male</th>
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<table>
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<th>HBD Disciplines</th>
<th>House Female</th>
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<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
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<tbody>
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<td>Design</td>
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<td>1</td>
<td>0</td>
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<td>3</td>
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</tbody>
</table>

Note: STEM refers to Science Technology, Engineering & Math; SBS refers to Social & Behavioral Sciences; HBD refers to Humanities, Business and Design

These numbers reflect promotion review outcomes that were submitted to the Executive Vice President & Provost Office.

Source: Office of Institutional Research
Table 5a. Years in Rank at the Associate Professor Level Hired as Assistant Professors as of October 2009

<table>
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<th>Years in Rank</th>
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<td></td>
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<td>3-5</td>
<td>13</td>
<td>28%</td>
</tr>
<tr>
<td>6-8</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>9-11</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>12-14</td>
<td>6</td>
<td>13%</td>
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<tr>
<td>15 or more</td>
<td>5</td>
<td>11%</td>
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<tr>
<td>Total</td>
<td>47</td>
<td>100%</td>
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</tbody>
</table>

Those 15 and more:
- Range: 15-24, 15-34
- Mean: 20.4, 21.4
- Std. Deviation: 4.5, 4.5
- Median: 23, 21

<table>
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<th>Years in Rank</th>
<th>SBS</th>
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<tbody>
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<td></td>
<td>Women</td>
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<td>0-2</td>
<td>11</td>
<td>35%</td>
</tr>
<tr>
<td>3-5</td>
<td>9</td>
<td>29%</td>
</tr>
<tr>
<td>6-8</td>
<td>4</td>
<td>13%</td>
</tr>
<tr>
<td>9-11</td>
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<td>3%</td>
</tr>
<tr>
<td>12-14</td>
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<td>3%</td>
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<tr>
<td>15 or more</td>
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<td>16%</td>
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<tr>
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<td>100%</td>
</tr>
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</table>

Those 15 and more:
- Range: 15-27, 15-33
- Mean: 22.6, 35.6
- Std. Deviation: 4.8, 7.0
- Median: 24.0, 26.0

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<tr>
<td>9-11</td>
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<td>11%</td>
</tr>
<tr>
<td>12-14</td>
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<tr>
<td>15 or more</td>
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</table>

Those 15 and more:
- Range: 15-29, 15-30
- Mean: 18.9, 20.6
- Std. Deviation: 3.7, 4.1
- Median: 17.5, 21

STEM = Science, Technology, Engineering, and Mathematics
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HBD = Humanities, Business, and Design
Iowa State University ADVANCE Program
Year 4 2009-2010 for Public Distribution
Table 5b. Years in Rank at the Associate Professor Level for Faculty Hired as Associate Professors as of October 2009

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<td>17</td>
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<tr>
<td>9-11</td>
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<td>0</td>
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</tr>
<tr>
<td>12-14</td>
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<td>Std. Deviation</td>
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<td>Median</td>
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<td>Mean</td>
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<td>Std. Deviation</td>
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<td>15 or more</td>
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<td>Range</td>
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<td>Mean</td>
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<tr>
<td>Std. Deviation</td>
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<td>Median</td>
</tr>
</tbody>
</table>

STEM = Science, Technology, Engineering, and Mathematics
SBS = Social and Behavioral Science
HBD = Humanities, Business, and Design
Table 6. Voluntary, Non-Retirement Attrition, by Rank and Gender Fiscal Year 2009

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<thead>
<tr>
<th>Category</th>
<th>DEPARTMENT</th>
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STEM = Science, Technology, Engineering and Mathematics
SBS = Social and Behavioral Sciences
HBD = Humanities, Business and Design
<table>
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<th>Total</th>
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<th>Associate Professor Male</th>
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STEM = Science, Technology, Engineering and Mathematics
SBS = Social and Behavioral Science
HBD = Humanities, Business and Design
APPENDICES

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Collaborative Transformation Project

Mail address: 1550 Beardshear • Office: 118 Office & Lab • Iowa State University • Ames, IA 50011 • advance@iastate.edu

Rounds 1 & 2 - Focal Department Synthesis Report*

Animal Science
Chemistry
Civil, Construction and Environmental Engineering
Ecology, Evolution, and Organismal Biology
Genetics, Development and Cell Biology
Materials Science Engineering

April 2010

Sharon R. Bird, Laura Rhoton, Carla Fehr and Lisa M. Larson


*Contact: sbird@iastate.edu for more information about the ISU ADVANCE Collaborative Transformation Project.

*The research reported here was supported by a grant from the National Science Foundation SBE 0600399. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.
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and Professor of English

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Findings

April 2010

This report summarizes research from the Iowa State University ADVANCE Collaborative Transformation (CT) Project. The results discussed here are based on intensive research conducted within six Science, Technology, Engineering and Mathematics (STEM) departments at ISU during 2006-2009. The report also reviews some of the activities within the departments aimed at enhancing workplace climate and improving recruitment, retention and promotion of diverse faculty that have been inspired and informed by the CT Project. These activities are funded by a 5 year grant from the National Science Foundation’s ADVANCE Institutional Transformation program, which is designed to create an infrastructure for transforming structures, cultures, and practices in ways that enable and support recruitment, retention and promotion of women faculty in STEM fields. This report represents one step in an overall multistage process. The CT Project will eventually include three additional focal ISU STEM departments, a further synthesis of findings from all departments over a 5-year period, and the development and refinement of assessment tools aimed at identifying and reducing barriers to faculty scholarly success—including issues that hinder the recruitment, retention and promotion of women faculty.

The first three departments to participate in the CT Project were Ecology, Evolution, and Organismal Biology (EEOB), Genetics, Development and Cell Biology (GDCB), and Materials Science Engineering (MSE). These departments began participation in 2006. The second three departments to participate in the CT project were Animal Science, Chemistry, and Civil, Construction and Environmental Engineering. These departments began participation in 2008. The first 6 focal departments represent three colleges: The College of Liberal Arts and Sciences, the College of Agriculture and Life Sciences, and the College of Engineering. Department Chairs and faculty in each of these departments have been working together with researchers (scholars in the fields of organizational studies, women in science, and higher education) and members of the ISU ADVANCE Co-PI Leadership Team and its partners to help ISU better understand how to ensure positive departmental work environments and to achieve the overall goals of ADVANCE grant project. These departments were selected, in large part, because of their willingness to contribute to achieving greater understanding of the structures, practices, and cultures most conducive to faculty success at ISU and, collectively, among STEM disciplines. The departments selected for the ADVANCE CT Project are home to many nationally prominent graduate programs and world renowned scholars. Each of these departments and their department Chairs, all of whom have dedicated considerable time and attention to the ISU ADVANCE project, are to be commended for their efforts.

The departmental work involved in the project was organized by ADVANCE Professors, Department Chairs and a departmental team or advisory group in each respective department. The methods for gathering the in-depth qualitative data were focus groups,
individualized interviews with faculty and chairs, and existing documents (e.g., departmental governance documents) from each of the three STEM departments. The average participation rate among the faculty in the three departments was **76.75 percent**. All interviews and focus groups were audio-recorded and then transcribed. Transcriptions yielded more than 2000 double-spaced pages of raw data in addition to the respective governance documents and notes from focal departmental web sites. The data were first analyzed separately for each department. Separate reports (executive summary, findings, strategies for addressing salient issues, summary of research methods) were then written for each department so that individual departments could begin the process of addressing issues particular to their own department.

The CT Project is designed to “mirror back” to faculty within each department aspects of their own workplace climate that influence how positive their climate is and how effective the department’s recruitment, retention and promotion practices are. This requires using focus group and interview data to better understand departmental structures, practices, and cultures. Departmental *structures* include codified and or routine decision-making processes, including governance documents, resource allocation procedures, and committee configurations. Departmental *practices* refer to the systematic actions in which faculty members generally engage. And departmental *cultures* refer to prevailing values, norms, assumptions and symbols of departmental members and their activities.

After the six separate departmental reports were completed (as noted above), the data for all six departments were then analyzed collectively in order to identify those issues that were salient across all six departments. **Thus, this synthesis report is not a simple merging of all findings from the separate departments, but rather represents only the issues that were common to all six departments.** For example if an issue was identified as salient in only one or two departments, it was not included in this report. Each major finding outlined below represents an issue that faculty in all six departments addressed during focus group and interview sessions.

The seven major findings across ALL six departments are (1) mentoring of faculty; (2) transparency in assigning courses/teaching loads and rewarding teaching; (3) collegiality; (4) faculty recruitment and retention structures and practices; (5) promotion and tenure structures and practices; (6) work-life balance structures and practices; and (7) facilities and space. These are outlined below, with assessment tools for identifying possible next steps below each finding. Note that while all of the issues presented as findings below have clear implications for women faculty and other underrepresented faculty groups, each also has implications for those groups that are not underrepresented in faculty roles.

**FINDING 1: MENTORING FACULTY**

- In all 6 departments, Chairs were identified as playing a crucial role in mentoring Assistant professors by helping to increase Assistant professors’ understanding of expectations for tenure and/or promotion and work with them during promotion and tenure processes.
• All department Chairs meet with Assistant professors annually to conduct a performance review. Most of the 6 focal department Chairs also have adopted the practice of meeting with Assistant professors as a group once or twice a year to discuss any issues of interest or concern to junior faculty. Assistant professors report that they benefit greatly from this.

• Faculty across ranks, and especially Assistant professors, stress the importance of senior faculty mentoring for Assistant Professors. Many Associate professors also stress the need for senior faculty to mentor faculty at the Associate level, though the issues of greatest interest among Associate professors (regarding mentoring) differ somewhat from those of Assistant professors.
  o Among Associate professors who expressed the need for better mentoring (for promotion to Full), for example, central issues include the need for more information about the level of research accomplishment and about when to seek promotion. Assistant professors, by comparison, express the need for clearer and more consistent messages from senior colleagues regarding the level of accomplishment in teaching, service and research required for promotion and tenure.
    ▪ Department culture plays an important role in determining the consistency and effectiveness of mentoring for both Associate and Assistant professors.
    Mentoring of Assistant (and to some extent, Associate) professors is a more recognizable aspect of some departmental cultures than others.

• The Assistant and Associate professors who are MOST satisfied with the level of mentoring that they receive are:
  o those who (by their own accounts) receive consistent messages from senior faculty and the department chair regarding expectations/requirements for tenure and/or promotion;
  o those who perceive departmental documents regarding tenure and promotion to be transparent;
  o those whose colleagues have gone through the tenure and/or promotion process and have communicated to other, more junior faculty that the process was transparent and fair.

**Assessment and implementation tools:** Not all departments have cultivated formal mentoring relationships between junior and senior faculty. In departments where mentoring is a part of departmental culture, not all mentoring relationships are consistently beneficial to junior faculty. Departments seeking to improve mentoring relationships between Assistant professors and their more senior colleagues and/or between Associate professors and Full professors may benefit from the following (see also Bird and Hamrick 2008):

• Sharing aggregated departmental information about faculty productivity by rank, particularly in the areas of publishing, obtaining external funding, professional practice, teaching and service;
• Chair-led meetings with Associate professors (collectively and/or individually) about promotion similar to the discussions that department Chairs and Assistant professors regularly have;
• Assistant and Associate professor participation in university-wide (rank-specific) forums and workshops regarding promotion and tenure, including discussion of the
relative value and rewards to be attached to teaching, research, obtaining external funding, professional practice and service;

• Regular meetings among departmental mentors to share information about mentoring and mentoring strategies; and
• College-wide and/or university-wide training for mentors.

FINDING 2: TRANSPARENCY IN ASSIGNING COURSES/TEACHING LOADS AND REWARDING TEACHING

• In all 6 departments, many if not most faculty stress the importance of excellence in teaching and take pride in teaching.
• In all 6 departments, many faculty also stress the need for greater transparency in the ways in which teaching assignments (courses and loads) are made; how “excellence” in teaching is determined and the extent to which excellence in teaching influences tenure and promotion decisions and annual salary increases; and in how credit for teaching and teaching-related activities (e.g., advising, teaching large vs. small sections, etc.) is allocated.
  o Overall, faculty perceptions of transparency in teaching assignments, loads, and rewards vary across departments.
  o Assistant, Associate and Lecturer faculty express greater concern over these issues than Full professors.
• Faculty perceptions of fairness in teaching assignments and in the distribution of teaching-related rewards are related to faculty perceptions of transparency in teaching assignments and reward-allocations. The more transparency that faculty members perceive, the more apt they are to believe that teaching assignments, loads, and rewards are fair.
• Faculty concerns about transparency in teaching assignments and rewards were greater among Round 2 focal departments of the ADVANCE CT project than among Round 1 departments. Faculty members in Round 2 were more apt to link these concerns to university budget issues. Faculty in Round 2 were also more apt to explain that the need for transparency in teaching is especially crucial given the likelihood that most faculty in most departments will be teaching more students in the near future.
  o Faculty who participated in Round 2 of the CT project appear to be less resistant to the idea of teaching more students than they are to an anticipated lack of transparency in how decisions about teaching may be made. Faculty members in many (focal) STEM departments believe that teaching more students and a higher course load is inevitable.

Assessment and implementation tools: Gaps in understanding and/or differing assumptions among departmental faculty members regarding teaching assignments, course loads, and/or the relative value of and reward structures for teaching (especially as they pertain to promotion and tenure or salary decisions), may result in dissatisfaction among faculty members. Departments seeking to increase transparency regarding teaching may benefit from the following (see also Bird and Hamrick 2008):
• Departments may benefit from sharing information regarding: average teaching loads for faculty (by rank) within the department, and the number and type of courses taught by each faculty member each year.
Departments that share information regarding faculty teaching responsibilities would be advised to also contextualize work responsibilities of faculty members, keeping the following issues in mind.

- Not all faculty members share the same kind of academic appointment (i.e., Personal Responsibility Statements (PRSs) vary).
- Not all faculty members are supported at the same level by grants and contracts.
- Not all faculty members serve on the same number of university, department and student committees.
- Not all faculty members support/work with the same number graduate students, or advise undergraduate students.
- Not all courses taught by faculty require the same time and effort investment (e.g., larger vs. smaller enrollment courses, courses with and without lab sections).

Departments may benefit from the development of strategies to document and publicly recognize especially meaningful contributions in service or teaching. For example, departmental awards for leadership or teaching excellence may highlight major accomplishments in a manner that might be more readily recognized by faculty colleagues or external reviewers.

Departments may benefit from the development of a departmental strategic plan, developed with wide faculty participation (to ensure broad ownership of the plan), that describes concretely the values placed on research, teaching, outreach and service.

FINDING 3: COLLEGIALITY

“Collegiality” was the term used to describe a wide array of faculty behaviors and practices. These included seeking out colleagues for research collaborations; being able to express differing viewpoints during faculty meetings; being comfortable questioning assessments made by colleagues regarding applicants and on-campus candidates for faculty positions; socializing with faculty during or after working hours; supporting one’s colleagues for awards nominations; effectiveness and willingness to act as a mentor; “pulling one’s weight” on departmental committees; demonstrating a willingness to fill in for colleagues in cases of emergency or prolonged illness; and taking leadership roles in ensuring that one’s colleagues feel welcomed to express differing views or to ask questions regarding departmental procedures and practices.

Faculty members explained that whereas some departmental practices contribute positively to collegiality, others detract from it. Collegiality (and perceptions of it), in turn, influence many other dynamics within departments.

- **Departmental practices that contribute to collegiality.** Departmental practices that contribute positively to collegiality center mainly on the extent to which faculty members perceive fairness and transparency in decision-making regarding key departmental functions and secondarily on the extent to which faculty members are familiar with colleagues’ work and support one another.
  - Transparency issues that influence collegiality include transparency in making teaching assignments, distribution of course loads, and student advising; procedures for evaluating faculty members for tenure and promotion; procedures for evaluating faculty members for annual salary increases; and practices of recruiting and
evaluating candidates for faculty positions. Less transparency was associated negatively with perceptions and experiences of collegiality; greater transparency was associated positively with collegiality.

- Mutual support issues that influence collegiality include faculty collaborations with one another; faculty socializing together; and faculty offering assistance to one another in times of professional or personal need. Less mutual support was associated negatively with perceptions and experiences of collegiality; greater mutual support was associated positively with collegiality.

- **Departmental dynamics that are influenced by collegiality.** A proportion of the faculty in each department (the proportion varies) expressed concerns regarding the effects of collegiality on promotion and tenure, willingness to express opposing viewpoints, teaching responsibilities, research collaborations and on the distribution of departmental resources, and awards nominations.
  - Lecturers (and Adjuncts) and Assistant professors were more apt to express concerns about the effects of collegiality than were Associate and Full professors.
  - Across all six departments, faculty members who feared negative repercussions (e.g., in tenure decision votes, teaching assignments, awards nominations) reported being less likely to express personal perspectives and to disagree openly with more senior faculty (e.g., at faculty meetings or in one-on-one conversations with colleagues).
  - Faculty across ranks noted that collegiality enhances (and is enhanced by) colleagues’ willingness to step in during emergencies or situations involving the needs of a faculty member’s family, to support one another by helping teach other faculty members’ courses and by reviewing grant proposals.
  - Faculty across ranks noted that collegiality contributes positively (and is enhanced by) colleagues’ active promotion of departmental faculty for college, university and professional association awards.

**Assessment and implementation tools:** In departments in which collegiality is low or declining, departmental cohesiveness and faculty members’ commitment and productivity may suffer. Low levels of collegiality may also damper faculty members’ willingness to participate fully in departmental activities and decision-making. Under these conditions, departments may in turn be operating under false assumptions about how much agreement actually exists among the faculty regarding important departmental issues. Departments hoping to tap the range of faculty members’ viewpoints and potential contributions may thus benefit by implementing the following types of practices and procedures:

- Regularly reviewing and posting “best practices” for effective and efficient faculty meetings.
- Increasing transparency in decision-making regarding teaching assignments and rewards associated with teaching (see ISSUE 2 above).
- Chair-led (or some substitute for the Chair) discussions with the faculty about the teaching needs of the department in conjunction with faculty input regarding how to meet departmental teaching needs.
- Increasing transparency in decision-making regarding tenure and promotion and annual salary increases (see ISSUE 5 below).
• Increasing transparency in decision-making regarding faculty recruitment, hiring and retention (see ISSUE 4 below).
• Designating a faculty member at each faculty meeting to facilitate dialogue in a manner that encourages respect for colleagues and equitable opportunities for diverse ideas from the full range of faculty participants.
• Encouraging faculty members to learn more about colleagues’ research (e.g., review grant proposals and attend research presentations) and facilitating the development of collaborations among faculty in the department and across departmental units.
• Encouraging faculty members to work together to help ensure that colleagues’ are able to balance work and family/life responsibilities.
• Cross-departmental Chair workshops that focus specifically on best practices for promoting collegiality in departments and/or among faculty in cross-departmental programs.

FINDING 4: FACULTY RECRUITMENT, HIRING AND RETENTION STRUCTURES AND PRACTICES

Faculty members across all departments express the belief that recruitment, retention and promotion of the very best faculty members is essential to the success of the department and university. Faculty members across all departments, furthermore, express the belief only highly qualified candidates should be hired.

• Recruitment structures and practices. Most faculty members across departments express support for recruiting a diverse range of faculty members, including scholars with differing research interests, women scholars, scholars of color, and international scholars. A smaller portion of the faculty in each department (the proportion varies), however, also expressed the belief that efforts aimed specifically at increasing the percentage of women faculty or faculty of color in a department may result in the gender or ethnicity of the candidate being viewed as more important than the quality of the candidate’s scholarship. This sentiment (when expressed) is often framed as a “lowering of standards.” Faculty who subscribe to this view may not yet be convinced that searches aimed specifically at increasing the number of candidates from diverse backgrounds result in job offers to individuals who are as highly qualified as those who receive job offers under processes that do not specifically target underrepresented groups.

• Many faculty members (again, the proportion varies) who articulate the belief that targeting women and minorities in hiring processes amounts to lowering standards also subscribe to the belief that in order for the number of highly qualified women and candidates of color to increase, the percentages of women and people of color earning advanced degrees in STEM fields will have to increase. Putting more effort into recruiting more women and people of color, from this point of view, will produce little added benefit because there simply aren’t enough highly qualified candidates among these groups.

• The extent to which departments actively try to recruit women and people of color varies, as do departments’ primary recruitment strategies. Departments’ primary recruitment strategies (arranged from those more common to less common) include:
  o Relying primarily on faculty search committees (in conjunction with department Chair and departmental faculty consultations) to determine short lists of candidates
to pursue, review applications, and develop short lists (some departments rely more primarily on search committees to do this work than do others);

- Use of personal professional networks to identify promising graduate students and post-docs for future recruitment into faculty positions;
- Inviting promising graduate students and post-docs to ISU to give guest lectures before they go on the job market (in hopes of eventually making job offers to some of these promising new scholars);
- Highlighting the departments’ positive work culture and collegiality; this may be accomplished, for example, by routinely introducing faculty candidates to graduate students and support staff to help them get a feel for the department and the larger community; and
- Actively trying to recruit women and underrepresented minorities from other universities, cities or regions of the country that have more under-represented people of color.

Some faculty members in each department, however, disagree with the strategy of specifically targeting women or underrepresented minorities in hiring processes—preferring instead to use “gender blind” and “race/ethnicity” blind recruitment strategies.

- **Hiring structures and practices.** Faculty members report that start up packages and salary competition with other Universities often leaves Iowa State University at a disadvantage when it comes to hiring faculty. Many of the candidates for faculty positions, and perhaps especially women faculty candidates and faculty candidates of color, are recruited by multiple schools at once.
  - While some ISU STEM departments purposely offer these candidates more money in order to recruit them, Iowa State University often cannot compete with the job offers of other schools.
  - The practice of inviting scientists to give guest lectures before they are on the job market in order to attract the candidate to Iowa State has been successful in some instances (and is a practice that is viewed positively by most departmental faculty).

- **Retention structures and practices.** The extent to which departments try actively to retain faculty differs across departments. For some departments, retention is viewed as less problematic. Many departments focus more primarily on faculty recruitment than on retention. While the range of retention practices is limited, the most common of these are noted below.
  - Departments proactively support the research of the faculty—a practice that is greatly appreciated by individual faculty members across all 6 departments.
  - To the extent that departments proactively support teaching, faculty also appreciate this; the extent to which departments support teaching, however, varies.
  - Most departments, led by the efforts of department chairs and special departmental committees, consistently boost faculty members’ academic reputations within their respective fields of scholarship by:
    - Providing assistance to junior faculty members regarding the preparation of grant proposals;
    - Helping Assistant professors to identify teaching improvement workshops that align specifically with faculty members’ teaching needs; and
• Actively and consistently nominating a wide range of faculty members for college, university, and professional association awards.
  o Some departments try actively to maintain a positive departmental climate and ensure that faculty members are made aware of “family friendly” policies, and that faculty members within the department “pitch in” to help ensure that when personal emergencies arise, teaching and service responsibilities will be covered.

**Assessment and implementation tools:** Departments seeking to ensure the recruitment, retention and promotion of the most highly qualified faculty, and to ensure at the same time that faculty of diverse perspectives and backgrounds are recruited, hired and retained, may wish to pursue the following strategies (see also Bird and Hamrick 2008):

• Research indicates that the notion that one must “lower standards” in order to recruit and hire more women and underrepresented minorities is a myth (National Academy of Science 2007; Onwuachi-Willig 2010; Turner, Myers and Creswell 1999).
  o Previous research suggests that the “lowering standards” myth, in turn, may contribute to faculty members’ unwillingness to explore and implement new strategies for expanding existing faculty networks to include potential faculty candidates whose backgrounds differ from their own (in terms of diversity of thought and diversity of personal backgrounds) (Onwuachi-Willig 2010).
  o Departments (and colleges) may wish to invest additional energies into dispelling the myth of “lowering standards” and, in turn, refocus faculty attention on making ISU STEM departments a destination for women and faculty of color (as well as all other groups).

• The argument that emphasizes a lack of Ph.D. and post-doctoral level women and/or underrepresented minorities in STEM is called the “pipeline” metaphor. This argument suggests that the underrepresentation of certain groups in academic STEM is due primarily to their lack within the STEM “pipeline.” Research, however, indicates that the underrepresentation of women faculty and faculty of color cannot be fully accounted for by the proportion of these groups in the “pipeline” (Goulden, Frasch, Mason 2009; Marschke, Laursen, Nielsen and Rankin 2007; National Science Foundation 2004). A proportion of this underrepresentation is to due to the “leaking” of women from the “pipeline” (i.e., women leaving academic science at a disproportionate rate).
  o Previous research suggests that the pipeline argument, in turn, may contribute to faculty members’ unwillingness to explore and implement new strategies for expanding existing faculty networks to include potential faculty candidates whose backgrounds differ from their own (in terms of diversity of thought and diversity of personal backgrounds) (Onwuachi-Willig 2010).
  o Departments (and colleges) may wish to invest additional energies into addressing the limitations of the “pipeline” argument and, in turn, refocus faculty attention on making ISU STEM departments a destination for women and faculty of color (as well as all other groups).

• Departments may wish to discuss diversity as a requisite part of a strategic plan for achieving and maintaining excellence.
• Departments may wish to discuss the explicit use of agreed upon evaluation criteria and conscious monitoring of discussions about applicant files to ensure observations about faculty candidates are supportable by the evidence.
• Departments may wish to discuss inviting as seminar presenters women and persons of color who are post-docs and graduate students at universities known to graduate and attract (as post-docs) higher proportions of women and people of color;
• Departments may wish to hold presentations that highlight studies about unintentional bias problems associated with the recruitment and evaluation of candidates.
• Departments may wish to use uniform candidate forms for evaluating candidates that include a list of the criteria in the position announcement/job description.
• Departments may wish to try discussing each candidate’s (or short list of candidates’) strengths as well as weaknesses to help minimize the potential effects of unintended biases.
• Departments may wish to emphasize to on-campus interviewees faculty awareness of issues faced by women faculty and faculty of color, partner accommodation efforts, and university “family friendly” policies, including part-time tenure.
• Departments may wish to develop strategic plans for retaining faculty members that include goals for:
  o Engaging senior faculty members more actively in mentoring junior faculty members;
  o Ensuring that Assistant professors have the support they need for preparing grant proposals;
  o Providing consistent feedback to faculty members regarding teaching; and
  o Developing/maintaining active departmental awards committees that help to gain recognition of faculty excellence in research as well as teaching and professional practice.
• Departments may wish to discuss, identify and implement department-level policy changes that might clarify the department’s long-term commitment to its faculty and to a family-friendly workplace.

**FINDING 5: PROMOTION & TENURE STRUCTURES AND PRACTICES**

• *Faculty reviews and evaluations*: Some faculty members noted confusion and concern over how teaching, research, securing grant funding and service were evaluated for promotion and tenure within their departments.
  o Some faculty noted that unequal distribution of teaching and service responsibilities hinders their ability to devote time to research and external funding which may negatively effect their promotion (usually from Associate to Full professor). Concerns were voiced over the value applied to teaching and service relative to the value applied to research and obtaining external funding.
  o Some faculty noted that the timing of faculty reviews and the meaning behind evaluations and reviews was unclear and unhelpful; some of these faculty members also report being confused about the purpose of faculty reviews and evaluations.
  o Some faculty noted that the criteria used in reviews was inconsistent from person to person and often changed.
  o Other faculty questioned the value of conducting reviews, especially if everyone appeared to be given the same level of affirmation for their accomplishments.
• **Transparency in promotion and tenure:** Some faculty noted that the information sharing process about promotion and tenure is inadequate. The reasons for this vary, but include spatial proximity to colleagues and mentoring.
  o Some faculty note that there is lack of understanding of the expectations for promotion and tenure. For example, some departments don’t specify how many publications are needed.
  o Some faculty note that there isn’t enough support for Assistant faculty members during the promotion and tenure process (e.g., regarding how to package the appropriate materials for P&T dossiers).
  o Some faculty note that there is less support for Associate professors than for Assistant professors. In some departments, faculty note that standards for promotion from Associate to Full are extremely vague and appear to vary from person to person.
  o Some faculty note feeling stressed when they are unclear about the process.

• **Career flexibility:** Not all faculty members in all departments are fully aware of family friendly policies as they relate to tenure and promotion. (See also Finding 6 below).
  o Some faculty reported not knowing that the tenure clock can be delayed for the birth or adoption of a child or to take care of an ailing family member.
  o Among some faculty who are aware of family friendly policies, there is skepticism about the use of those policies as they pertain to tenure and promotion.
    ▪ Some senior faculty members worry that other departmental senior colleagues will expect junior faculty members who “delay” or “stop” the tenure clock to produce “extra” research products.
    ▪ Some untenured tenure-track faculty worry that departmental senior colleagues will “hold them to a higher standard” in promotion and tenure decisions.
  o Some faculty reported (in addition) being confused as to how to evaluate faculty members who have stopped the tenure clock.
  o Many faculty reported that because successful promotion and tenure often relies on obtaining grant funding, the ability for faculty to take time off is reduced due to responsibilities surrounding grant-funded research.
  o Some faculty note that taking parental leave, especially in the form of a reduced teaching load, places undue burden on other faculty members who may then have a more negative view of the faculty member taking time off, impacting promotion and tenure.

**Assessment and implementation tools:** Departments seeking to enhance promotion and tenure structures and practices may benefit from the following:

- Departments may wish to hold discussions over criteria used and corresponding reward structures used for the evaluation of teaching, research, professional practice and service as these relate specifically to promotion, tenure and annual salary increases.
- Conducting an annual review and discussion of university work-life balance or “family friendly” policies led by the department Chair at a faculty meeting.
- Departments, furthermore, may wish to discuss annually and perhaps outline in their departmental governance document (or a departmental faculty handbook) department-
specific steps involved in and general expectations for tenure and promotion (which, again, must be consistent with college and university guidelines), including:
- Minimum criteria for research, teaching, professional practice and service competency for tenure, promotion to Associate, and promotion to Full;
- Relative value placed within the department on research, teaching, professional practice, and service;
- Relative value placed among faculty within the department regarding different publication outlets;
- Relative value placed within the department on different forms of external funding; and
- How teaching assignments are derived and expectations for teaching excellence in promotion and tenure processes.

FINDING 6: WORK-LIFE BALANCE STRUCTURES AND PRACTICES

- Most of the faculty support, in principal, the idea of family friendly policies. The extent to which faculty are aware of existing policies, however, varies considerably across departments, as do levels of support (in practice) for these policies. Faculty who were aware of family friendly policies noted that Iowa State had made progress in that area and were able to cite examples of colleagues successfully using these policies.
- Several faculty (within each department) noted that not everyone is aware of family friendly policies or support such policies.
  - Some faculty noted that delaying the tenure clock was seen as “unprofessional” because it placed undue burden on other faculty members having to teach for an individual taking time off.
  - Some faculty expressed the belief that faculty should not be allowed to delay a tenure clock for any reason.
  - Some faculty noted that their department has a “workaholic” culture that does not support delays or time off.
  - Many faculty noted that family leave requests have been handled on a case by case basis and that decisions have been inconsistent. This observation was more prevalent among the first round of departments, however, suggesting that over time, family leave requests are being handled more consistently.
  - Some faculty noted that hiring temporary instructors for faculty on leave is sometimes not financially possible for the department.
- Many faculty noted that delaying a tenure clock or taking time off of work was not plausible given the research demands of their occupation.
  - While faculty note that having family friendly policies is beneficial, they do not see it as plausible to use them.
  - Some faculty note that there are increased expectations for travel and other work obligations that make taking time off implausible.
  - Some faculty also note that the attitudes of others are slow to change and express concern over how faculty will be evaluated when it comes time for tenure and promotion if they have taken a leave or delayed a tenure clock.

Assessment and implementation tools: Because the issue of “family friendly” policies is university wide, the issues outlined above would appear to span all departments regardless
of individual department’s structures, cultures and practices. Chairs expressed support for faculty members who use these policies, and support the idea of helping other departmental faculty members to better understand how to evaluate the faculty member who utilizes one or more of ISU’s existing family friendly policies. Thus, in addition to further support at the university level, departments may benefit from the following (see also Bird and Hamrick 2008):

- Departments may wish to review annually during faculty meetings the current University procedures for partner accommodation and extension of the tenure clock.
- Departments may wish to hold discussions aimed at developing department-specific guidelines for providing release time during periods of family leave. These discussions could increase department-wide understanding of such policies and provide support for those who use them.
- Departments may wish to draft guidelines for providing family leave to faculty within the context of University guidelines.
- Departments may also wish to hold faculty discussions about how work-life issues affect those whose parents and other extended family members require care for prolonged illnesses and other life events.

**FINDING 7: FACILITIES AND SPACE**

- Many faculty report feeling satisfied with the office, lab, teaching and socializing spaces offered by their department and do not feel their work is compromised as a result of the facilities and space.
  - Some faculty note that the dispersion of faculty across multiple buildings makes the development of community difficult, which impacts information sharing, collaboration, mentoring and socializing.
  - Some faculty note that there is inadequate classroom space for both the size of classes and the types of classes taught (for example, the need for specialized classrooms).
  - Lab space in some departments is lacking in quantity and in functionality- some lab spaces are not up to safety codes or there are electrical, plumbing or environmental problems with the space.

**Assessment and implementation tools:**

- When departmental faculty members are dispersed across multiple buildings (or floors in buildings), departmental chairs may wish to take proactive steps to create spaces and time periods for junior faculty and tenured faculty to interact face-to-face with one another. Dispersion of faculty may impact faculty productivity, mentoring relationships, and faculty members’ awareness of their colleagues’ contributions to research, teaching, and service activities. Among the many ways to accomplish this are:
  - Department Chairs may wish to organize informal meetings with Assistant professors to discuss issues of departmental norms, policies, and tenure and promotion evaluation processes.
  - Department Chairs may wish to organize more regular faculty meetings and seminars.
  - Faculty members may wish to hold regular social gatherings.
• Departments may wish to hold faculty retreats or other regularly scheduled meetings in which faculty members can discuss their respective research programs and realize opportunities for collaboration.

• As a routine part of scheduling courses and assigning classrooms and labs, departmental teaching coordinators and/or committees may wish to report back to the faculty as a whole on the process by which room assignments are made (and the limitations to scheduling that result from forces beyond the control of the department).

• Departments may wish for form committees (or empower an existing committee) to work specifically on developing procedures (or for enforcing existing procedures) regarding the allocation, maintenance and safety of facilities for teaching and research.

REFERENCES:


National Science Foundation. 2004. Gender Differences in the Careers of Academic Scientists and Engineers (NSF 04-323). National Science Foundation, Division of Science Resources Statistics, Arlington, VA.


ISU Policies & Guidelines for Flexible Faculty Careers: Resources for Chairs & Deans

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Resource Rationale

The proportion of tenure-track positions held by women has slowly increased over the last few decades, but still does not reflect the tremendous increase over the same time period in the number of women earning doctorates. Furthermore, the proportion of women in the academy decreases at each rung up the rank ladder. These trends are most severe among the STEM (science, technology, engineering and math) disciplines—the strength of ISU.

To foster excellence, universities must attract and retain the best faculty. To accomplish this, universities must address the issues underlying the low number of women entering and advancing through tenure-track careers. Competition for the best faculty is intense and family friendly policies can make the difference for a prospective faculty member to choose ISU. To maintain excellence, academic institutions must create a climate conducive to the success of all faculty members and develop and implement policies that address existing barriers to the entrance into and success of women and persons of color in academe.

This resource is intended to support and guide chairs and deans in their efforts and responsibility to facilitate the success of all their faculty members. Practical information is provided following a model developed by the University of California Family Friendly Edge Initiative (Frasch et al. 2007).

Resource Contents

Why Should Departments Be Family Friendly? In Brief. p. 3
A bulleted list of data excerpted from the following section is provided.

Why Should Departments Be Family Friendly? In Depth. p. 4
This section provides a background for understanding the issues facing today’s faculty, particularly incoming and established women, and the need for increased flexibility in tenure-track careers.

How to Create a Family Friendly Department p. 8
Next is a list of steps chairs can take to create environments within their departments that foster success for all faculty members.

ISU Policies & Guidelines for Career Flexibility p. 10
ISU policies and guidelines that address career flexibility are summarized and links to additional information provided. A quick policy locator is included.

Quick Policy Locator p. 11
A table with the policy names and websites where each can be located is provided.

Legal Implications of Decisions p. 12
Policy use in making decisions is emphasized.

Citations and Resources p. 13
Complete citations for referenced works as well as additional resources and links for chairs are listed including ISU Family Friendly Programs and Resources.

Additional Resources and Links for Chairs p. 14

ISU Family Friendly Programs and Resources p. 15

Case Examples and Best Practices p. 16
Case examples are presented along with the best practices to address each.
1. Assistant professor and arrival of a child.
2. Associate professor with eldercare responsibilities.
Why Should Departments Be Family Friendly? In Brief.

✓ Only 30% of U.S. faculty positions are held by women, 28% at ISU
✓ Nationally and at ISU there are fewer women at each successive academic rank.
✓ There are half as many female as male faculty to serve as mentors.
✓ Married women with young children are half as likely to begin a tenure-track position as married men with young children.
✓ Female faculty with early babies (within 5 years of Ph.D.) are tenured at lower rates than male faculty with early babies.
✓ For most women who obtain a tenure track position, they are doing so at an age when their fertility is 50% of what it once had been.
✓ By the age tenure is typically earned, fertility has dropped another 30%.
✓ At ISU, female faculty at each rank have fewer children than their male colleagues.
✓ Family friendly policies are being adopted more widely among academic institutions, but such policies are under utilized.
✓ More female than male faculty members experience the stress of dual academic careers.
✓ Family-friendly policies help recruit excellent faculty.
✓ Family-friendly policies help retain excellent faculty.
✓ Flexibility that results in retention may be more cost effective than replacement.
The proportion of women holding tenure-track positions nationally at research universities is only 30% (West and Curtis 2006). This proportion does not reflect a similar level of parity with the 51% of doctorates now awarded annually to women in the U.S. (National Science Foundation 2004a). ISU has experienced a slow increase in the percentage of female faculty over the last 2 decades from 19% in 1990 to 28% in 2008.

% Female Tenure-Track Faculty at ISU from 1990-2008.

Within the professoriate at U.S. research universities, women hold a decreasing percentage of positions with each step in rank. The faculty demographics at ISU mirror this trend with a sharp decline from the percentage of women at the associate rank to those holding the rank of full professor.

Females as percent ISU faculty at each rank in 2008

Within the professoriate at U.S. research universities, women hold a decreasing percentage of positions with each step in rank. The faculty demographics at ISU mirror this trend with a sharp decline from the percentage of women at the associate rank to those holding the rank of full professor.

National Gender Distribution of BS Recipients vs. Role Models.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Students</th>
<th>Faculty</th>
<th>Students</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>47.3%</td>
<td>12.1%</td>
<td>52.7%</td>
<td>87.9%</td>
</tr>
<tr>
<td>Math</td>
<td>48.2%</td>
<td>8.3%</td>
<td>51.8%</td>
<td>91.7%</td>
</tr>
<tr>
<td>Computer Science</td>
<td>27.7%</td>
<td>10.6%</td>
<td>72.3%</td>
<td>89.4%</td>
</tr>
<tr>
<td>Astronomy</td>
<td>32.7%</td>
<td>12.4%</td>
<td>67.3%</td>
<td>87.6%</td>
</tr>
<tr>
<td>Physics</td>
<td>21.4%</td>
<td>6.6%</td>
<td>78.6%</td>
<td>93.4%</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>38.7%</td>
<td>10.3%</td>
<td>61.3%</td>
<td>89.5%</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>24.5%</td>
<td>9.8%</td>
<td>75.5%</td>
<td>90.2%</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>13.1%</td>
<td>6.5%</td>
<td>86.9%</td>
<td>93.5%</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>13.9%</td>
<td>6.7%</td>
<td>86.1%</td>
<td>93.3%</td>
</tr>
<tr>
<td>Economics</td>
<td>32.3%</td>
<td>11.5%</td>
<td>67.7%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>58.4%</td>
<td>20.1%</td>
<td>41.6%</td>
<td>79.9%</td>
</tr>
</tbody>
</table>


Results of a regent study suggest “that while professor gender has little impact on male students, it has a powerful effect on female students’ performance in math and science classes, their likelihood of taking future math and science courses, and their likelihood of graduating with a STEM degree” (Carrell et al. 2009). Female students with high math and science ability were most strongly impacted by the gender of their professors. High ability female students whose introductory math and science professors were exclusively female were significantly more likely than high ability females whose professors were exclusively male to graduate with a STEM degree.

In turn, graduate students and post-doctoral associates are far less likely to be mentored by a female advisor than a male. “Without tenured, successful women academics, the assumption that women cannot achieve the same level of success as men persists and the pool of mentors who are key to a young scientist’s development, remains limited” (Quisenberry and Leach 2001).
The Progression Declines
The decline in the numbers of women progressing through the academy begins following completion of the Ph.D. An increasing proportion of graduate students (both women and men) are turning away from the professoriate (Mason et al. 2009). Graduate students in the University of California (UC) system were surveyed regarding changes in their career goals occurring during their Ph.D. programs. The female students whose original goal was professor with research emphasis dropped from 39 to 27% and among male students from 45 to 36%. Only 29% of female respondents perceived the workplace at research universities to be family friendly in comparison to 46% of male graduate students. Women may be avoiding tenure track careers because they perceive such a career limits their life choices.

The Decline Continues
Nearly 45% of the post-doctoral researchers in the biomedical sciences at research institutions in the U.S. are women. However, the proportion of female principal investigators (PIs) in the NIH Intramural Research Program is only 29% (Martinez et al. 2007). When postdoctoral fellows in this program were surveyed as to their career plans, fewer female than male fellows indicated that they would seek a PI position. If unsuccessful in their first round of applications, fewer females than males indicated that they would continue their pursuit of a PI position.

Work/Life . . . Work/Family
Family formation is often a consideration during the typical ages spent in pre- and post-doctoral training. The consequences of initiating a family for women PhDs seeking a tenure track career are profoundly different than those for men. An analysis of NSF data in the Survey of Doctorate Recipients (Frasch et al. 2007) indicates that for each year following the Ph.D., married women with children under age 6 are half as likely to begin a tenure-track position as married men with children under age 6. These findings are similar to ones reported in an NSF Special Report on Gender Differences in the Careers of Academic Scientists and Engineers (National Science Foundation 2004b).

On the Tenure Track
For most women who obtain a tenure track position they are doing so at an age when their fertility is 50% of what it once had been. And so, the biological clock ticks simultaneously with the tenure clock. The workload as an assistant professor is demanding and the idea of adding caregiving responsibilities is daunting. Each year she chooses to delay conception, the likelihood of achieving pregnancy drops further. By the age tenure is typically earned, fertility has dropped another 30%. Furthermore, the imperative to start a family has grown stronger as career timelines have elongated (Mason et al. 2009b).
When surveyed, female faculty in the University of California system indicated that the average number of hours per week they devoted to professional activities was 51.2, whereas male faculty indicated working 55.6 hours per week (Mason et al. 2003). Women faculty with children spent 35.5 hours per week caregiving, whereas men with children provided 20.3 hours of care. At ISU, childcare was shown to be a higher source of stress for female than male faculty at all ranks with the difference being most pronounced among assistant professors (Pontius and Gahn 2009).

Perhaps the most telling difference between female and male academics attempting to balance work and family is the number of children they choose to have. At ISU male and female faculty differ in the number of children, with female faculty at each rank having fewer than their male colleagues. The differences are statistically significant among associate and full professors, ranks usually achieved after family formation is complete. Responses to the University of California Work and Family Survey (Mason et al. 2003) revealed that 40% of women faculty past the age of likely fertility had fewer children than they wanted compared to only 20% of similar chronological aged male faculty.

Policies which address family demands associated with arrival of children are being adopted more widely among academic institutions. However, a number of studies are reporting low frequency of use of such family-friendly policies. The reason cited by 51% of female survey respondents in the University of California system for not using an Active Service Modified Duties policy was fear of disapproval for tenure or promotion, whereas only 26% of male respondents cited this fear (Mason et al. 2003). In a national survey of more than 4,000 faculty members in English and chemistry departments, 51% of faculty mothers returned to work sooner than they would have preferred after the arrival of a child (Drago et al. 2005). The most frequently cited reason was the desire to be perceived as being serious about their work.
Dual Career Stress

A 2006 survey of faculty at 13 U.S. research universities found that the majority of faculty has an employed partner and that 40% of women and 34% of men faculty frequently have academic partners (Schiebinger et al. 2008). ISU demographics are similar in that the majority of faculty has an employed spouse or partner. However, the percentage of female faculty with academic partners is more than double that of male faculty (Pontius and Gahn 2009). The result is that a greater proportion of female than male faculty experience the added stress of a dual academic household.

Employment Status of ISU Faculty Responding to 2008 Survey

Dual hires have been increasing in frequency among newly hired faculty since the 1970s (Schiebinger et al. 2008). This trend is likely to continue with near equal numbers of males and females earning doctorates and the increasing, however slowly, proportion of women in the academy. Also growing is the proportion of dual career (including non-academic) males reporting work-life conflict; 35% in 1977 and 59% in 2008.

Recruitment and Retention

Policies which allow faculty to meet the demands of both work and family are weighed heavily now by faculty candidates when considering a job offer (Mason et al. 2009a). Not only are dual-academic hires becoming more common, but also a generational difference is emerging in what first time job seekers consider most important (Galinsky et al. 2009). Work-life balance is a goal of many contemporary job candidates and the availability and implementation of family friendly policies can help universities secure the most prized job candidates.

Once recruited, retention becomes paramount and job flexibility may be the crucial incentive a highly talented faculty member needs to remain at ISU. Retention may be considered expensive, however, there are several costs associated with the departure and subsequent replacement of a faculty member: financial and time costs as well as the erosion of departmental climate. Career flexibility resulting in retention may be less costly than replacement. At ISU a conservative estimate of the cost of replacing a STEM faculty member can be as high as $383,000 whereas the cost of retention with flexibility as small as $79,000 (Gahn and Carlson 2008). The benefits of retention, however, are great; small financial cost, short time cost (particularly when the career span of a typical faculty member is considered) and strengthening of a positive departmental climate.

Economic incentive for retention:

<table>
<thead>
<tr>
<th>Costs of Retention</th>
<th>Costs of Replacement</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>$79,000</td>
<td>$383,000</td>
<td>$304,000</td>
</tr>
</tbody>
</table>

*STEM disciplines  

Source: Gahn and Carlson, 2008.
How to Create a Family Friendly Department

Chairs are pivotal to establishing family friendly climates and career flexibility within their departments. Several steps can be taken to create such an environment in which flexibility is both available and regularly utilized, enabling the success of all faculty members.

Make a family friendly culture a major department goal.

- **Dispel myths** that associate family caregiving with a lack of seriousness and flexibility policies as special privileges.

- **Promote a culture of inclusion.** Schedule meetings to accommodate competing needs of work and family. Usual hours of childcare providers are 8-5 and parents must arrive late or leave early if meetings abut these times. Create opportunities for junior faculty to interact with senior faculty. These meetings may occur at department luncheons once a month or receptions prior to seminars.

- **Foster a department wide recognition of diversity in family circumstances and needs.** Flexibility for the arrival of a child is a common situation occurring most often among junior faculty. The need to provide eldercare is becoming more common, particularly for faculty in the senior ranks. Flexibility policies will more readily be utilized if faculty members believe their colleagues are supportive.

- **Develop a department wide awareness of unconscious bias.** “Bias literacy: a review of concepts in research on discrimination” offers a thorough treatment of the forms of unconscious gender and racial bias. (http://momox.org/BiasLiteracy.pdf)

- **Maintain zero tolerance** for a negative climate. Discriminatory comments and behaviors can quickly erode departmental climate. Such conduct is unacceptable and is prohibited in the Faculty Conduct Policy.

Know flexibility policies and guidelines.

- **Actively support and advertise family friendly policies for all faculty.** Faculty cannot utilize policies of which they are unaware. Make policy use the norm and not the exception.

- **Chairs must make every effort to see that policy users will not be penalized.** Faculty often are reluctant to utilize flexibility policies for fear of negative repercussions particularly associated with their promotion and tenure. For faculty who utilized tenure clock extensions, direct both internal and external reviewers to focus on scholarship achieved in the accepted probationary period and not the time since hire, (see Faculty Handbook section 5.2.1.4). Include such direction in requests for external review letters. Example language for such requests can be found on the provost’s website http://www.provost.iastate.edu/faculty/advancement/promotion.html under Guidelines for Promotion and Tenure Process, Examples of Letters to External Evaluators.

Proactively recruit and hire diverse faculty.

- **Follow best practices for hiring.** Increase the diversity of the applicant pool by diversifying search committees. Create search committees that are enthusiastic and committed to faculty diversity. Evaluate and broaden efforts to publicize position openings.

- **Communicate the importance of diversity in recruiting.** Signal the importance of faculty diversity through positive statements in ads for faculty openings and on the departmental website.

- **Inform candidates of work/life support policies.** Career flexibility policies and programs should be emphasized to job candidates as well as related programs:
  - Supporting Flexible Faculty Careers
  - Dual Career Program
  - Mentoring for New Faculty
To assist efforts to increase diversity among hires, ISU ADVANCE has assembled the following downloadable publications:

- Administrators’ Checklist of Best Practices for a Diverse Search
- Tips for Creating an Inclusive Position Description
- Strategies for Recruiting Women Faculty
- Tips and Suggestions for Broadening the Candidate Pool
- Best Practices Checklist for Running a Faculty Search

- Develop a critical mass in the department. Critical mass can be achieved not only through numbers but also through connections. New and underrepresented faculty gain institutional knowledge, form collaborations and feel less isolated when well connected to faculty groups. Increase numbers of underrepresented faculty through searches. And, increase opportunities for interaction by creating networking events and cohort formation.

- Maintain transparency in P & T process.
  - Establish open communication about the process. Review the promotion and tenure process with new faculty and annually thereafter. Refer to the Faculty Handbook Procedures for Promotion and Tenure Review in section 5.2.4. Organize group meetings to address questions junior faculty may have regarding the tenure process.
  - Provide annual review feedback. Complete annual reviews including development of dossiers in the format required for tenure review. Provide feedback indicating areas in which sufficient progress is being made or areas in need of improvement.
  - Allow junior faculty access to review process. Arrange opportunities for junior faculty to attend departmental review committee meetings to gain a better understanding of how tenure portfolios are evaluated. If this cannot be done in the home department then observation in another department could be arranged. Transparency and confidentiality are difficult to maintain simultaneously however: each is essential to achieving equitable and candid evaluation.
Extension of Probationary Period
Significant life changes may arise which severely impact a faculty member's ability to develop qualifications for tenure. Such changes include a need for family caregiving, a health change or the arrival of a child (either during the probationary period or within the two years prior to appointment). When these circumstances arise, an extension of the probationary period for pre-tenure faculty may help balance work and life demands. A written request must be submitted by April 1 by the faculty member prior to the third-year or tenure review. A extension request for arrival of a child must be made within two years of birth or placement. A request due to family caregiving or health must include documentation of the need for care or medical condition.

Conversion to Part-time
Tenured faculty may request conversion to part-time for either professional or personal reasons. Tenure eligible faculty may request conversion for the same situations for which an extension of probationary period may be made: the arrival of a child, family caregiving or a medical reason. Non-permanent part-time appointments (a minimum of 50%) may be made in consecutive or non-consecutive half-year segments not to exceed a total longer than two calendar years. A written request must be submitted that contains the reason for the reduction, percent reduction, time period of reduction and the date of return to full-time. The chair facilitates the reduction and the responsibilities of the faculty member with the needs of the department. Service responsibilities are generally proportional to appointment.

Guidelines for Accommodating Employees’ Need to Care for Family
A faculty member who needs increased flexibility to address certain family situations should inform his/her chair and together develop accommodations that allow the department and the faculty member to maintain quality work. These accommodations may include combinations of accumulated sick or vacation leave, temporary reduction to part-time, use of Family Medical Leave Act (FMLA) and work responsibilities/schedule flexibility. The chair and faculty member must develop a written work plan for accommodating caregiving that includes changes in responsibilities and schedules, extension of probationary period (if faculty member is pre-tenure), use of paid or unpaid leave and anticipated time frame of accommodations. The chair must coordinate coverage of faculty member’s duties during the accommodations. Also, the chair must maintain consistent communication with the accommodated faculty member as well as the department’s benefits contribution.

Position Responsibility Statement
The Faculty Handbook states “A Position Responsibility Statement is a tool that allows for a flexible and individualized system of faculty review”. The responsibility statement of the faculty member should be general, covering only the significant responsibilities important for evaluation by the faculty member themselves, their peers and administrators. The PRS must be developed initially or changed only by agreement of both the faculty member and chair.

FMLA
The federal Family and Medical Leave Act provides an eligible employee the option of taking up to 12 workweeks of unpaid leave during any 12-month period for care for a new child, a family member or themselves due to a serious health condition. (There are also leave rights related to family members in the military.) To be eligible, an employee must have been employed for at least 1 year prior to taking leave and must have worked 1250 hours in the preceding 12 months. The eligible employee is able to keep current health benefits during an approved leave. For childbirth, Iowa law similarly provides up to 8 weeks of unpaid leave even if the employee is not eligible for FMLA.

Pregnancy Discrimination
Pregnancy Discrimination is defined and prohibited under an amendment to Title VII of The Civil Rights Act of 1964 and also Chapter 216 of the Iowa Code. Pregnancy discrimination constitutes unlawful sex discrimination. A pregnant employee may not be
treated more harshly than a similarly situated employee (i.e., an employee with a temporary condition or impairment) may be considered a temporary disability and a pregnant employee may not be treated more harshly than an employee with any other temporary disability. Accommodations, such as change in duties or an unpaid leave (up to 8 weeks), must be made that allow her to meet her responsibilities.

**Dual Career Program**
The Dual Career Program through the Office of the Executive Vice President and Provost serves as a focal point for efforts to find career options for the partners of incoming faculty. The program facilitates discussions of career options and collaboration with Career Services to provide information about job openings, employers, job search strategies and contact with employers and HR personnel on behalf of the job seeker. Academic partner accommodation at ISU may be requested also. Deans must develop and initiate the *Request for Salary Support for Recruiting and Retaining Tenured and Tenure Eligible Faculty* to the Office of the Executive Vice President and Provost.

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**Quick Policy Locater**

<table>
<thead>
<tr>
<th>University Policy Library:</th>
<th><a href="http://www.policy.iastate.edu">http://www.policy.iastate.edu</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension of Probationary Period</td>
<td>Faculty Handbook 5.2.1.4.</td>
</tr>
<tr>
<td>Position Responsibility Statement</td>
<td>Faculty Handbook 5.1.1.5</td>
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<td>Guidelines for Accommodating Employees’ Need to Care for Family</td>
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<tr>
<td>Conversion to Part-time</td>
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</tr>
<tr>
<td>FMLA <em>Family Medical Leave Act 1993</em></td>
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<td><a href="http://www.provost.iastate.edu/fad/dual-career.html">http://www.provost.iastate.edu/fad/dual-career.html</a></td>
</tr>
</tbody>
</table>
Legal Implications of Decisions

As department chair you will have the responsibility to guide individual faculty members through various academic and personal situations. In so doing, you act not as an individual but as an agent of the University. University policies and guidelines must be followed to arrive at decisions in the best interest of faculty while continuing to address departmental and university needs.

Chairs must become familiar with policies that pertain to the particular issues at hand. As chair you should inform faculty of pertinent policies and never discourage faculty from using policies. Furthermore, chairs should actively work to ensure no other department members discourage policy use. University policies and guidelines have been developed to address the situations you likely will encounter and a wise chair will emphasize the role policy implementation must play in decision making (Hecht et al. 1999). Policies provide the essential elements of a set of best practices. and when policy is not followed in regards to individual personnel.

Decisions, allegations of arbitrary and capricious action or of discrimination may arise. If allegations are taken to court, compliance with the governing policies and principles of the University will be used as the basis for judgment.

When as chair, you must make a personnel decision that you suspect may have legal implications, you should inform and involve your dean. Implications of various decisions may become evident later, such as at the time of or following tenure review of the faculty member. Research shows that ambiguous standards, bias and administrator’s comments have formed the basis of some tenure denial lawsuits under Title VII of the Civil Rights Act of 1964 (Title VII). In a number of cases disparate treatment has been argued in instances of sex discrimination when tenure had been denied. “Plaintiffs cited bias in measuring accomplishments, the failure to accommodate pregnancy and infant care, and unequal distribution of assignments and resources as reasons for pursuing legal action (Hill and Warbelow, 2008).”


Frasch, K., M. A. Mason, A. Stacy, M. Goulden, and C. Hoffman. 2007. Creating a family friendly department: Chairs and Deans toolkit. UC Faculty Family Friendly Edge, University of California, Berkeley http://ucfamilyedge.berkeley.edu/


Pontius, J. and S. W. Gahn, 2009. Iowa State University 2008 Faculty Satisfaction Survey. Iowa State University ADVANCE Program. Report available online at:  
http://www.advance.iastate.edu/pdfs/advance_reports/Full_Report_Faculty_Satisfaction_2008.pdf


West, M. S. and J. W. Curtis. 2006. AAUP Faculty Gender Equity Indicators 2006.  
http://www.aaup.org/AAUP/pubsres/research/geneq2006.htm

**Additional Resources and Links for Chairs**

AAUP Statement of principles on family responsibilities and academic work.  
http://aaup.org/AAUP/pubsres/policydocs/contents/workfam-stmt.htm


Center for the Education of Women, University of Michigan  
FAMILY-FRIENDLY POLICIES IN HIGHER EDUCATION: A Five-Year Report December 2007  
http://www.umich.edu/%7Ecew/PDFs/Redux%2020Fam%20Final%205-1.pdf  
PRINCIPLES FOR BEST PRACTICES: A Collection of Suggested Procedures for Improving the Climate for Women Faculty Members  

Chair Online Resource Center, American Council on Education  
http://acenet.edu/resources/chairs/

http://lser.la.psu.edu/workfam/Big10parentalleavefinal.doc


Lester, J. and M. Sallee. 2009. Establishing the Family Friendly Campus; Models for Effective Practice. Stylus Printing, Sterling, VA.

National Academies Committee on Women in Science, Engineering, and Medicine  
http://www.sites.nationalacademies.org/pga/cwsem/index.htm

National Science Foundation, Division of Science Resources Statistics, Gender Differences in the Careers of Academic Scientists and Engineers, NSF 04-323, (Arlington, VA, 2004).  

http://momox.org/BiasLiteracy.pdf

Sloan Work and Family Research Network, Boston College  
http://wfnetwork.bc.edu/

UC Family Friendly Edge, University of California, Berkeley  
http://ucfamilyedge.berkeley.edu/


ISU Family Friendly Programs and Resources

- Child Care & Family Resource Services
- University Child Care Center at Veterinary Medicine
- University Community Childcare at University Village
- ISU Child Development Laboratory School
- The Comfort Zone-ISU Sick Child Care Service
- Emergency and Back-Up Child Care Services
- Work/Life at Iowa State University
- YWCA Sitter's List
- Lactation Locations
- Iowa State Programs for Youth
- Nutrition Clinic for Employee Wellness
- Dependant Care Spending Account
- Fitness Programs
- Couple and Family Therapy Clinic
- ADVANCE
- Margaret Sloss Women's Center
Case 1. First-year assistant professor expecting arrival of a child.

Susan is two months into her first year as an assistant professor in your department. She informs you that she is due to deliver a baby in March and hopes to be able to provide the care for her newborn for several weeks following birth. She is worried that she will be unable to teach and continue her research next semester after her baby arrives.

As chair you assure Susan that you are supportive and will work with her to develop a plan for increased flexibility to accommodate a need to care for family. Because Susan has been a faculty member for less than a year she is ineligible for leave under the Family Medical Leave Act (FMLA). B-base Faculty benefits do not include vacation leave, and as a new faculty employee she will have accrued very little sick leave by March (a little over two weeks). Susan has limited options for leave with pay. While she does not qualify for FMLA, her chair can still approve leave without pay (LWOP). Under Iowa last, she is eligible for up to 8 weeks of unpaid leave.

The arrival of Susan’s baby will occur well into spring semester, which makes semester-long teaching assignments difficult. As chair you can arrange the teaching schedule to relieve Susan of lecture responsibilities for the semester in which her child will arrive or you and she could work on developing a first-half semester course. Some chairs have arranged a team-teaching assignment in such situations. It is likely that you will need to work with her to revise her position responsibility statement (PRS) for the semester, to reflect a revised set of duties for the time she is on appointment during the semester. It’s important that you not have any performance expectations for the time she is off on sick-leave or leave without pay. You will likely not have any service expectations during this time. With this set of options for flexibility, Susan can continue to develop her research program while she provides care for her newborn.

Inform Susan of the policy for an extension of the probationary period for the arrival of a child. Also, inform her that she may wait to decide to take an extension, but she must submit a written request no later than April 1 prior to her third-year review. As chair, you are required to approve such a written request and forward to the dean and provost. When Susan is reviewed for tenure, you must be sure as chair to instruct those from whom letters of evaluation are requested to base the evaluation on years since hire minus the stoppage time. Be sure to review section 5.2.1.4 in the Faculty Handbook.

Case 2. Associate professor with family caregiving responsibilities.

Allen is a third year associate professor who is married with two middle school children. Allen’s father lives nearby and needs an increasing amount of care. Allen is finding it stressful to maintain work quality while spending time with his family and caring for his father. He relates his situation to you and inquires if something can be arranged to alleviate some of his stress.

As chair you assure Allen that you are supportive and will work with him to develop the flexibility to address his work and life demands. Allen is eligible to use 5 days of his accumulated sick leave to care for a family member, this runs concurrently with 12 weeks of unpaid leave under the FMLA. Consult with Human Resource Services about the appropriate use of accumulated paid leave.

Additional flexibility policies for Allen include a conversion to part-time, made in half-year segments for up to two calendar years. To convert to part-time, Allen must submit a written request that contains the reason for the reduction, percent reduction, time period of reduction and the date of return to full-time. See section 3.3.1.1. for the policy on conversions to part-time appointments.
The goal of the National Science Foundation (NSF) ADVANCE Program is to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce.

Institutional Transformation Awards support innovative and comprehensive programs for institution-wide transformation to promote the increased participation and advancement of women scientists and engineers in academe. Beginning in 2001, 43 institutions have received ADVANCE Institutional Transformation Awards.

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Preamble

With the additional reductions in funding expected to Iowa State University, many academic units are re-evaluating their budgets and going through changes, including restructuring. Because these changes may significantly influence the way that faculty and staff conduct their work, this is an important time to re-assess existing departmental cultures, structures, and practices. In some cases there may be opportunities to eliminate historical inequities. Given this environment, ADVANCE collaborators asked the question “How can lessons learned from ADVANCE be applied to assist colleges, departments, and faculty to make the most of these upcoming university transitions and achieve the best possible outcomes?”
The ISU ADVANCE Program is a 5yr NSF-funded initiative to improve recruitment, retention, and advancement of women faculty and women faculty of color in STEM (Science, Technology, Engineering, and Math). It is one of many such initiatives across the country (see ADVANCE Portal link for details). ISU ADVANCE participants work within departments using a “collaborative transformation” approach to improve the work environment for all faculty members. The program identifies cultures, practices, and structures that enhance or hinder the careers of ISU faculty, and engages faculty and administrators to transform university policies, practices, and academic culture in pursuit of a diverse, vibrant and productive faculty in STEM disciplines (for methodologies, see Bird and Hamrick, 2008).

In examining ways to remove known barriers to the advancement of women faculty in STEM disciplines, research through ADVANCE has identified conditions that help departments function well for all faculty members. This document details suggestions derived from these findings that relate specifically to upcoming university transitions.

Overview

The university and its academic units should 1) be cognizant of the importance of transparency and provide safe opportunities for individual opinions to be expressed regarding important issues, 2) use restructuring as an opportunity to reduce or eliminate existing inequities, and 3) minimize isolation and provide good mentoring, especially in restructured departments.

Transparency and Expression of Opinion

If changes are expected at the department or college level, administrators should provide venues for open discussion and use meeting structures that maximize the opportunity for all voices to be heard. This is particularly important in the case of departmental mergers and/or reorganizations. If departmental restructuring occurs and faculty members are required to change their home department, it is important to provide opportunities for all parties to participate in these decisions. This approach will facilitate smooth functioning of the newly assembled groups. Executive or advisory committees that weigh in on the decision-making process may provide another helpful voice for faculty. Ideally, these advisory committees would solicit input from the full range of the departmental members (including the diversity of rank, research/teaching interests, and gender, race, and ethnicity present). Finally, transparency with regard to budgets is important, at both the departmental and college level, so that faculty can understand the limitations and options available.

Equity

Loss of resources (e.g., support staff, teaching assistant funding, or supplies) within a department or academic unit may require decisions regarding the redistribution of resources. Reorganization of departmental structure may also require redistribution of resources. Creative solutions may be achieved via open discussion of issues to make solutions as equitable as possible. In all cases, redistribution should be used as an opportunity to minimize any existing inequities among academic units or departmental members (keeping in mind the balance of resources, teaching, research, and extension responsibilities).

Isolation/Mentoring

If departmental mergers and/or reorganizations occur, they can 1) result in faculty being located in multiple buildings and 2) bring together groups that have very different cultures with respect to research, teaching, extension, and service. If faculty members are located in multiple buildings, extra efforts to enhance communication and foster a new sense of community may help to mitigate isolation issues. Bringing together groups with different cultures can have a significant impact on perceptions of equity, and hence workplace satisfaction. Mentoring assistant or associate professors, especially those nearing a promotion, will be particularly important in these cases. Inclusivity and respect for cultural differences among groups will assist in the process. This can also be an opportunity to combine best practices of the former home departments.

While many of these outcomes focus on departmental culture, the colleges and the university as a whole can benefit from these insights. It is hoped that administrators at the college and university levels will be supportive of academic units and leaders that choose to implement these recommendations.

Supporting Documents and Resources

For resources about the issues raised above (transparency, equity and mentoring) and ways these are being addressed at ADVANCE programs nationwide see the ADVANCE Portal website: http://www.portal.advance.vt.edu/index.html

For initiatives and resources at Iowa State University, see the ISU ADVANCE Program website: http://www.advance.iastate.edu/

ISU ADVANCE Scholar Program  
Participant Annual Report Summary  
Flo Hamrick, Co-PI team member and head of the ISU ADVANCE Scholar Program

Five Scholar pairs (ISU ADVANCE Scholars and Eminent Scholars in their disciplines or specialty areas) participated in the ISU ADVANCE Scholar Program during 2008-2009, the inaugural year of the program. By the first week in June 2009, three Eminent Scholars had visited Iowa State University and three ISU ADVANCE Scholars had visited their Eminent Scholars’ institutions. Two additional ADVANCE Scholar trips are planned for early fall 2009, and one additional Eminent Scholar visit to ISU has been scheduled for early fall. An invitation extended to one Eminent Scholar has not yet resulted in firm plans for a visit to ISU. All five of the ISU ADVANCE Scholars have expressed in renewing their participation in the Program for the next academic year.

Topics, Activities, and Tasks:

All five ISU ADVANCE Scholars completed report forms (questionnaires) for 2008-09. The specific tasks and activities undertaken by the Scholar pairs during their reciprocal visits and via e-mail or phone are summarized below. All names and references to specific disciplinary areas have been removed for this aggregated report. ISU ADVANCE Scholars also provided open-ended feedback, which is summarized at the end. Eminent Scholars were not asked to complete an annual report.

The following occurred during the ISU ADVANCE Scholars’ visits to their Eminent Scholars’ institutions:

1. Delivered class guest lecture
2. Gave a seminar or talk at the department or program level
3. Gave seminar or talk at the college or school level
4. Spoke to an institution-wide audience (e.g., open invitation campus-wide)
5. Met with Eminent Scholar’s colleagues
6. Met with Eminent Scholar’s students and/or lab personnel
7. Discussed grant-writing strategies
8. Discussed and received feedback on draft journal manuscript(s) or abstracts
9. Discussed external funding sources relevant to your work
10. Discussed opportunities for networking with other prominent scholars
11. Engaged in hands-on collaboration (e.g., learning or teaching a technique)
12. Discussed future collaboration(s)
13. Discussed strategies related to promotion and tenure success
14. Discussed scholarly or professional leadership opportunities
15. Discussed strategies related to managing research labs and/or personnel
16. Discussed successful teaching strategies
17. Shared meal(s) and/or informal time with Eminent Scholar
18. Shared meal(s) and/or informal time with Eminent Scholar’s colleagues
19. Shared meal(s) and/or informal time with Eminent Scholar’s students and/or lab personnel
20. Discussed ADVANCE program (i.e., ISU or national-NSF)
21. Discussed issues related to career advancement for women faculty of color
22. No visit to Eminent Scholar’s institution during this award period
23. Other (please explain):
   - Attended a lecture by Eminent Scholar.
   - I had a chance to observe how the Eminent Scholar supervises students.
   - I invited the Eminent Scholar to join my grant proposal and he agreed to do so.
The following occurred during the Eminent Scholars’ visits to Iowa State University:

3 Gave seminar or talk at the department or program level.
2 Met with ISU ADVANCE Scholar’s colleagues
1 Discussed grant-writing strategies
1 Discussed and received feedback on draft journal manuscript(s) or abstracts
2 Discussed and received feedback on draft funding proposals
2 Discussed external funding sources relevant to your work
1 Discussed opportunities for networking with other prominent scholars
1 Discussed research techniques, fieldwork approaches, and/or data analyses
1 Discussed future collaboration(s)
1 Discussed strategies related to promotion and tenure success
1 Discussed scholarly or professional leadership opportunities
2 Shared meal(s) and/or informal time with ISU ADVANCE Scholar
2 Shared meal(s) and/or informal time with ISU ADVANCE Scholar’s colleagues
1 Discussed ADVANCE program (i.e., ISU or national-NSF)
1 Discussed issues related to career advancement for women faculty of color
2 No visit by the Eminent Scholar during this award period
1 Other (please explain):
  o I have invited my Eminent Scholar to visit ISU in the coming year.

Related Documentation:

Photographs (where available), links to documents, and web site links have been posted on the ISU Scholar Program web site to illustrate the Scholar Pairs’ visits and research presentations. ISU departmental web sites also listed and publicized the visiting Eminent Scholars’ talks and related events, with appropriate credit to the ISU ADVANCE Program.

Email or Phone Contacts:

Most Scholar Pairs engaged in phone conversations, e-mail exchanges, or both during the 2008-09 timeframe.

Two ISU ADVANCE Scholars reported engaging in three phone conversations with their Eminent Scholars; one ADVANCE Scholar noted that the Eminent Scholar initiated these conversations while the other ADVANCE Scholar reported initiation of phone calls by both her and the Eminent Scholar.

Four Scholar Pairs exchanged e-mails during the award period. Two ADVANCE Scholars each estimated 10 e-mail exchanges with their Eminent Scholars, which were mostly initiated by the ADVANCE Scholars. Another ADVANCE Scholar estimated that she was the principal initiator of five e-mail exchanges with her Eminent Scholar. One ADVANCE Scholar reported that both she and her Eminent Scholar initiated “numerous” e-mail exchanges.

During these phone calls and e-mail exchanges, the following topics were discussed:

1 Feedback on draft journal manuscript(s) or abstracts
1 Feedback on draft funding proposals
1 External funding sources relevant to your work
2 Current or future collaboration(s)
1 Strategies related to promotion and tenure success  
1 Scholarly or professional leadership opportunities  
2 Strategies related to managing research labs and/or personnel  
1 Successful teaching strategies  
3 Plans for future visits or meetings  
1 ADVANCE program (i.e., ISU or national-NSF)

Open-ended Items:

**Future Plans:** Please describe plans for future interactions with the Eminent Scholar (e.g., collaborations, visits, contacts):

Invite the Eminent Scholar and/or his colleagues to visit ISU.  
Explore the possibility to conduct a short experimental course for US graduate students and/or professionals.  
Exchange research information on a specialized topic.  
Look for an opportunity for writing a collaborative research proposal.

I plan to keep contacts with the Eminent Scholar and meet with her at conferences.

The Eminent Scholar’s visit to ISU is set in Sept 2009. She will deliver a seminar on graduate education. My visit to her institution is set in Oct 09. I will deliver a dept seminar focusing on my research. We will also meet and visit during June at a conference in CA to discuss various topics.

Discussion with Eminent Scholar generated new research ideas and identifying the problems associated with the study design I was proposing. Her topical expertise is important to extend my research to study a related topic.

I knew the Eminent Scholar before, but not personally. I am very grateful that the ISU ADVANCE Scholar Program provided me the excellent opportunity to know him well and explain to him my research projects which he is interested in. This is very helpful for further enhance the development of my research career. I could not have done that without your support. Thank you!

**Benefits:** Please describe benefits associated with your participation in the ISU ADVANCE Scholar Program:

Encouraged and supported to visit one of the top universities in my research area in the world and to exchange research information there.  
Learned different experimental and analytical techniques used in this area of research.  
Met students and scholars from four different countries through a short course I was attending during my visit and learned their research status.

I received lots of useful advice about research, teaching, and student supervision from the Eminent Scholar.

From the e-mails and phone conversations so far, I feel that I have a sounding board and I can speak without any concerns for which I may have if talking to people on campus. More benefits should be gained once we have more in-person interaction.
Visit Eminent Scholar’s institution and get feedback on the proposal that will be written based on Eminent Scholar’s idea.

The Eminent Scholar and I had a productive discussion during my visit to his university. We will work on one joint paper. Besides, he will attend a workshop in August 2009 organized by me and my collaborators. We are working on a group proposal which will be submitted in Sep. 2009.

**Recommendation:** Would you recommend participation in this program to colleagues? Why or why not?

1. Yes. Visiting the selected Eminent Scholar has opened my eyes and mind to the new areas of my research. The encouragement and support of this visit through the ADVANCE Scholar Program is sincerely appreciated.

2. Yes because I got lots of useful advice from the Eminent Scholar.

3. Yes.

4. It is a great program to interact and develop network. This program also helps for the junior faculty to advance in research.

5. Yes, it is very helpful to me and I am sure this program is beneficial to my colleagues too.

**Suggestions:** Please provide suggestions for improving the ISU ADVANCE Scholar Program (in terms of your experiences, and in terms of the Program as a whole):

1. In order to have concrete products, the program participants shall have at least a 2-3 year award period so as to implement the plans established in the first year for future interactions with the Eminent Scholar.

2. None.

3. I may provide later! I do want to express my appreciation of Flo for allowing me much flexibility on scheduling of the visits. I have let too many things occupying me and not having these visits scheduled sooner. Thanks for your understanding, Flo.

4. Improve Eminent Scholar initiated activities. Providing some guidelines may help.

5. This good program should be advertised widely (I told my colleagues about it). I would have missed it if not contacted by Dr. Hamrick.
ISU ADVANCE has become Iowa State’s most prominent vehicle to recruit, retain, and advance women and women of color in STEM faculty positions. We are known for a well-managed network, innovative research, and an integrated approach to change. We work within departments using a Collaborative Transformation approach to improve the work environment for all faculty members. Our program identifies cultures, practices, and structures that enhance or hinder the careers of ISU faculty, and works with faculty and administrators to transform university policies, practices, and academic culture in pursuit of a diverse and vibrant faculty in STEM disciplines.

From the National Science Foundation website:

“The goal of the ADVANCE program is to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce.”

“Institutional Transformation Awards support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe. These awards support innovative and comprehensive programs for institution-wide change.”

Project award size and length: 5 years, 2006-2011. $3.3 million

Our Goals and Major Accomplishments in the First Three Years

**Goal 1.** To overcome known barriers to the advancement of women faculty in STEM disciplines we have focused on 1) increasing transparency, 2) decreasing isolation, 3) increasing the value of mentoring, and 4) enhancing career flexibility.

**Transparency**
- Unconscious bias in P&T evaluation and recruitment were discussed in workshops for focal department chairs
- Chairs in focal departments initiated informal meeting with new faculty to discuss tenure expectations
- Faculty recruitment resources developed and disseminated via CD, Web site and workshops.

**Isolation**
- Events at the university, college and department levels include lectures, workshops, and networking events.

**Mentoring**
- College-level mentoring, including peer mentoring, provides opportunities for pre-tenure faculty
- ADVANCE Scholars program supports research interaction between women faculty of color and non-ISU Scholars

**Flexibility**
- National conference on increasing flexibility in STEM faculty careers (October 2008)
- Partnerships with Faculty Senate to pass “Modified Duties Policy”

**Goal 2.** Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines

- Development of the Collaborative Transformation Project with six ISU STEM departments to enhance local climate and support new and established faculty.
- Identification and discussion of common circumstances that currently block faculty success: the importance of spatial proximity, mentoring of assistant and associate professors, democratic participation in departmental governance, family friendly policies, recruitment and retention practices, and gaps between stated ideals and reality. Implementation of department, college, and university-level plans to address these conditions.
- Workshops for all university faculty and administrators were held in April 2008 and January 2009 to share and discuss the findings from the Collaborative Transformation project in the first three focal departments
- Impact of the Collaborative Transformation project will be measured through follow-up surveys: COACHE (2005 and 2009) and AAUDE (2008 and 2010).

Constituents

- Faculty in 30 STEM departments across 5 colleges, representing over 750 faculty members in total, are included in the program’s constituents.
- Nine focal departments in the STEM disciplines, representing 3 colleges, (Agriculture and Life Sciences, Engineering, and Liberal Arts and Sciences), have been selected for targeted departmental transformation intervention over the course of the project.
- Key partners and change agents are Equity Advisors, one in each of the 3 focal colleges, and ADVANCE Professors and department chairs in each of the 9 focal departments.

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5383
Goal 3. Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks
- The College of Engineering Search Committee and Diversity Committee collaborated on making diversity a key part of finalist interviews.
- We are creating a critical mass of top administrators who are aware of, and committed to, improving the status of women and underrepresented minorities. Since 2005, five high level academic leadership positions have been filled at Iowa State, three by women, one by an Hispanic male, and one by a white male. Each of these new leaders is committed to ISU ADVANCE Program goals.
- The number of women full professors has been increasing during the current decade. In 2008 there were 101 women full professors, 44 in STEM.

Future Outlook for ISU ADVANCE
- We are at a critical point in the development of our program, with an effective organizational structure and committed participants—co-PIs to the Executive Vice President and Provost.
- Our Collaborative Transformation project will continue in the first six departments and three additional departments will participate in the last two years.
- Workshops will be presented in the coming year on faculty flexibility and family friendly policies as well as advancement from associate to full professor.
- The Equity Advisors and college representatives will be key to sustainability of the project past the funding period; we are working with deans of the three focal colleges to continue the Equity Advisor positions.
- We have not yet seen the impact of our work in the numbers of women faculty in STEM, but our project is designed to build institutional change in a slower way that will last.
- Our geographic location means we face additional challenges in recruiting and retaining faculty of color in STEM, but next year, we will expand our work with women faculty of color.
- With the Women’s Leadership Consortium and the Executive Vice President and Provost, we plan to produce a portrait of leadership with benchmarks for gender representation.
- We have demonstrable progress in the ISU ADVANCE program, but we also recognize the importance of our continued efforts at institutional transformation.

ADVANCE Council
Principal Investigator
*Susan Carlson, Associate Provost for Faculty Advancement and Diversity, Professor of English

Co-PIs and Senior Personnel
*Bonnie Bowen, Executive Director, Ecology, Evolution & Organismal Biology
*Sharon Bird, Research Director, Sociology
Diane Debinski, Ecology, Evolution & Organismal Biology
Carla Fehr, Philosophy & Religious Studies
Sandra Gahn, Institutional Research
Florence Hamrick, Educational Leadership & Policy Studies
*Member of Steering Committee

College Partners
College of Engineering
Diane Rover, Associate Dean
Kristen Constant, Equity Advisor
College of Liberal Arts & Sciences
David Oliver, Associate Dean
Lisa Larson, Equity Advisor
College of Agriculture & Life Sciences
Joe Colletti, Sr. Associate Dean
*Janette Thompson, Equity Advisor

Department Partners
Materials Science and Engineering
Ecology, Evolution & Organismal Biology
Genetics, Development & Cell Biology
Civil, Construction and Environmental Engineering
Chemistry
Animal Science
Plant Pathology
Chemical & Biological Engineering
Physics & Astronomy

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ADVANCE In a Nutshell

From the National Science Foundation website:

“The goal of the ADVANCE program is to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce.” “Institutional Transformation Awards support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe. These awards support innovative and comprehensive programs for institution-wide change.”

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5383

ISU ADVANCE Program Goals

1. Overcome known barriers to the advancement of women faculty in STEM disciplines
2. Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines
3. Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks
4. Institutionalize positive change across the university

ISU ADVANCE has become Iowa State’s most prominent vehicle to recruit, retain, and advance women and women of color in STEM faculty positions. We are known for a well-managed network, innovative research, and an integrated approach to change. We work within departments using a collaborative transformation approach to improve the work environment for all faculty members. Our program identifies cultures, practices, and structures that enhance or hinder the careers of ISU faculty, and works with faculty and administrators to transform university policies, practices, and academic culture in pursuit of a diverse and vibrant faculty in STEM disciplines.

In all of our relationships, our strategy is to collaborate with and develop agents of change. We create change from the “bottom up” by using a collaborative transformation approach in focal departments. We work with all faculty, including ADVANCE Professors and department chairs, to enhance the work environment for all faculty.

We work within and create new college and university infrastructure to develop the sustainable capacity for institutional transformation. Working from the “top down,” we also create the capacity for change at the college and university levels through our Equity Advisor positions and our ADVANCE Council. The ADVANCE Scholar program for women faculty of color strengthens other mentoring programs at ISU, such as the Executive Vice President and Provost Office Mentoring Program for tenure-eligible faculty.

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Success Stories

The ISU ADVANCE program has notable successes in its first three years. Below we have summarized accomplishments relative to the program goals in our grant proposal.

Program Goals:
1. Overcome known barriers to the advancement of women faculty in STEM disciplines
2. Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines
3. Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks
4. Institutionalize positive change across the university

Goal 1: Overcome known barriers to the advancement of women faculty in STEM disciplines
(known barriers are: departmental transparency, isolation from colleagues, quality and quantity of mentoring, and career flexibility)

During Year 3, the College of Engineering coordinated three events for women faculty (including breakfasts and lunches) throughout the year to combat isolation. Engineering women faculty discussed various topics, including hiring, promotion and tenure, and the dean candidates. Similar lunch events also were hosted by ADVANCE in the College of Agriculture and Life Sciences. Women associate and full professors in the College of Liberal Arts and Sciences met to generate ideas for ADVANCE. The idea of an ADVANCE Lectures Program arose from one of these meetings in Year 2 and was launched in the 2008-2009 academic year.

There is a realization across colleges, largely due to ADVANCE efforts, that faculty need mentoring to move from the associate to the full professor ranks. The Office of the Executive Vice President and Provost and several deans are redesigning mentoring programs as a result.

Goal 2: Identify and eliminate department-specific barriers to the advancement of women faculty in STEM disciplines

One focal department (Genetics, Development and Cell Biology [GDCB]) drafted guidelines to describe standard procedures for modifying the duties of faculty who are new parents. The goals of the departmental guidelines are 1) to provide for greater transparency and predictability; 2) to reduce teaching and service responsibilities for new parents; and 3) to ensure that new parents are able to maintain and build nationally recognized programs of research. GDCB also reports that in the years since joining the ADVANCE project, discussions about the value of diversity have become integral to searches for new faculty.

The Materials Science and Engineering department constituted a task group to develop modified duties guidelines. The committee then agreed that there are other differences (beyond the arrival of a child) in faculty situations that could suggest the need for adjustments in teaching and service assignments. A new guideline that addresses “transparency in assignments” was developed such that faculty with either high or low research productivity will have adjusted assignments for teaching and/or service.

The Ecology, Evolution, and Organismal Biology departmental now charges faculty search committees to strive “to solicit and receive applications from a broad and diverse applicant pool.” Departmental search committees are also now formally charged with (a) judging applicants’ vitas “based on explicit criteria,” (b) using “a matrix to ensure objectivity” in this process, and (c) notifying voting faculty within the department
at least three days in advance of the faculty meeting for discussing an initial short list of possible
interviewees.” “The voting faculty may” then “choose to interview candidates other than, or in addition to,
those recommended by the search committee.” These procedures are now part of the department’s
governance document.

The Department of Genetics, Development and Cell Biology provided childcare assistance for speakers
traveling with or caring for infants.

(Reported in Bird, Sharon R., Kristen Constant, Fred Janzen and Jo Anne Powell-Coffman. 2008.
“ISU ADVANCE Collaborative Transformation Project: First Round Focal Department

Goal 3: Increase the representation of women and underrepresented minorities at senior faculty
and leadership ranks

The College of Engineering Equity Advisor, in collaboration with partners across campus, developed
criteria to evaluate administrative-level candidates with respect to diversity issues. These criteria were
part of the evaluation of candidates for the positions of Dean of Engineering, Dean of Design, Dean of
Human Sciences, and the Vice President for Research and Economic Development. Of these four
searches, two white women, one Hispanic man and one white man were hired. ADVANCE can by no
means claim these entirely as our successes, but we have built upon existing traditions by offering new
search strategies and have influenced the process.

Goal 3: Institutionalize positive change across the university

We have used interactive theater in three different ADVANCE-sponsored events. Our ISU-ADVANCE
team includes members who authored a series of case studies for internal training purposes which we
were able to transcribe into brief scripts. We modified the University of Michigan’s model by engaging our
own faculty as “actors” in Reader’s Theatre productions related to unconscious bias, evaluation in the
hiring process, and advice to junior faculty preparing for promotion and tenure review. Faculty engaged
as actors have remarked on how much they have learned by assuming a character and thinking about
how faculty interact and what assumptions they commonly make. Audiences have been very responsive
and have rated these presentations highly.

Two workshops on the topic of faculty search resources were held during fall, 2008. Of the 60 people
who attended each event, more than half were new participants to the ADVANCE program events. Over
200 ISU ADVANCE Resources for Faculty Searches CDs, summarizing best practices, have been
distributed to faculty, departments and colleges. Across campus, these tools have broadened faculty
perspectives on best practices and approaches to searches, particularly with respect to tools such as
evaluation matrices.

The Faculty Senate passed a Faculty Modified Duties Assignment (FMDA) policy for the arrival of
children. ADVANCE partnered with other groups on campus to support this initiative and inform Faculty
Senators about the importance of modified duties for the recruitment and retention of women faculty. Due
to budgetary limitations, this policy will not be taken to the Board of Regents until the economic climate
improves.
Comprehensive Institutional Intervention Strategy at Iowa State University  
Bottom-up/Top-down: Institutional Change through ISU ADVANCE  
NSF Site Visit Report, August 3-5, 2009

Overview of ISU ADVANCE

Since its inception, ISU ADVANCE has been a program based on careful planning and data development, a program notably transparent as well as trans-disciplinary. Our central plan of a comprehensive institutional intervention that uses a bottom-up/top-down approach defines our efforts to effect and sustain change on our campus. With an expanding community of participants and partners, we have become the key campus repository for information and resources on the recruitment, retention, and advancement of an excellent and diverse STEM faculty. Nearing the end of our third year, we continue to model the institutional change we seek.

ISU ADVANCE Structure. The ISU ADVANCE Program began with a team of faculty who became the co-PIs, working to build a program foundation for three years before the submission of the grant. The co-PI “Team” (now 7 persons) still takes responsibility for central decision-making and works closely with three of its members in leadership roles: the PI, the Executive Director, and the Research Director. Our effectiveness is based on the enduring commitment of this group as well as on an active ADVANCE Council, made up of the PI and co-PIs, the Associate Deans and Equity Advisors in three focal colleges, the Associate Deans in two other STEM colleges, ADVANCE Professors in seven focal departments, two graduate students, and one Administrative Fellow. Other groups provide advice and counsel: the Internal Advisory Board (Executive Vice President and Provost [EVPP] and the deans of our five STEM colleges), the Equity Advisor/ADVANCE Professor Group, College Councils in three focal colleges, the Steering Committee, and the External Advisory Board. The program works with the EVPP Office to convene department chairs for training, and is refining its evaluation plan with input from the EVPP staff. To coordinate our many efforts and share information, we keep a semester calendar, a WebCT library, careful records and minutes, as well as a repository of institutional and survey data.

Goals, Themes, Principles. We are consistently guided by the NSF ADVANCE goals as well as the four goals that defined our grant proposal:

- **Goal 1:** Overcome known barriers to the advancement of women faculty in STEM disciplines
- **Goal 2:** Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines
- **Goal 3:** Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks
- **Goal 4:** Institutionalize positive change across the university.

We have used internal formative evaluation to assess our progress and respond to needs. Annual planning retreats for ADVANCE Council members have been used to recalibrate our efforts and shape each coming year. For example, Year 3 was guided by the theme of “Recruiting the best: the role of work-life flexibility,” six “Guiding Principles,” and six “Goals for the Year”. In January 2008 (Year 2), we hosted an external evaluation team whose recommendations helped us refine our organizational structure and redirect our financial resources.

Like other units outside the traditional department structure, we have experienced the ambiguities of sharing faculty, resources, responsibility, and administration with other academic units. As a result, we have learned to be flexible while creating a unique program known for high quality work. The remaining sections of this report will highlight progress and challenges in meeting our four goals, program evaluation progress, and future outlook.
Program Goals: Progress and Challenges

Our program for institutional transformation links structural initiatives at the levels of the college and institution (top-down) to department-level assessment of culture and practice (bottom-up). We use top-down and bottom-up approaches to address the four goals identified in the proposal.

Goal 1: To overcome known barriers to the advancement of women faculty in STEM disciplines, we have focused our efforts on 1) increasing transparency, 2) decreasing isolation from colleagues, 3) increasing the quality and quantity of mentoring, and 4) enhancing career flexibility.

Increasing the transparency of faculty advancement processes, decision-making, and evaluation criteria has been addressed via small group meetings, workshops (which were referred to as retreats in the grant proposal), educational CDs, and Web site resources. Equity Advisors and ADVANCE Professors have played a key role ensuring that we designed workable initiatives.

- Training to enhance awareness of issues: Diversity workshops for focal department chairs included guided analyses of case studies on transparency and on evaluating letters of reference. Two Reader’s Theatre performances included guided discussions on transparency, evaluation, and isolation issues faced by women in STEM departments.
- Recruitment: To increase the use of best practices in hiring, a resource CD on faculty search processes was developed by an Administrative Fellow and distributed via a well-attended workshop for department chairs in Spring 2008 (Year 2). Two well-attended campus-wide workshops were held in Fall 2008 (Year 3) and over 200 copies of the CD have been distributed across campus. In addition, all of the information is also available on the ISU ADVANCE Web site, and Equity Advisors have made presentations to search committee and department chairs. Our interventions in support of inclusive recruiting did not occur until late in Year 2 and we have not yet seen their effect on our indicator data. Prior to 2008-09 (Year 3), the percent of new hires who are women had not increased. Results from 2008-09 are not yet available.
- Tenure expectations: As a result of an initial diversity training workshop for focal department chairs and Council members, two chairs instituted the practice of gathering all assistant professors for a meal or coffee with Q&A about the P&T processes, strategies, and resources to assure that faculty members had access to information on professional advancement.
- Advancement from associate to full: The need for transparency in advancement from associate to full professor is also being addressed. Two colleges have held workshops on promotion from associate to full professor and our Administrative Fellow in Year 4 will focus on this issue.

A wide-ranging schedule of networking events sponsored or co-sponsored by ISU ADVANCE serves as a primary strategy for reducing isolation from colleagues. These events are held at both college and university levels and have included discussions related to career advancement and informal gatherings of women faculty; attendee evaluations have been strong. ISU ADVANCE has contributed to the intellectual vitality of STEM departments by sponsoring or co-sponsoring seminars from visiting scholars through its program of lectureship grants and its funding of visits by Eminent Scholars (selected by participating ISU ADVANCE Scholars).

A long-standing faculty mentoring program at ISU has been enhanced by the ISU ADVANCE Scholar program that funds the development of collaborative, networking, and mentoring relationships between women STEM faculty of color and non-ISU Eminent Scholars within their disciplines or specialty areas. Although the initiation of the program was delayed due to personnel limitations, we currently have an active group of ISU ADVANCE Scholars who are meeting and collaborating with their Eminent Scholars and we anticipate expanding the program next year. The Scholar program has also enhanced recruitment in some departments that have very few women. Additionally, college-level initiatives, including peer mentoring, have centered on developing and providing effective mentoring opportunities for all pre-tenure faculty.
To enhance career flexibility ISU ADVANCE has taken a multifaceted approach to stimulating dialogue and improving university policies and practices. The New Norm of Faculty Flexibility conference in October 2008 brought national experts and engaged scholars to ISU to share research findings for developing and implementing effective institutional policies. The conference was attended by 145 individuals (40% from ISU, 60% representing 20 states and the District of Columbia), was sponsored by three external partners, five ISU colleges, as well as the Offices of the President and the EVPP, and was featured in local newspapers and in the national monthly Women in Higher Education. Year 3 of the program (2008-09) carried the theme “Recruiting the best: the role of work-life flexibility,” and featured the development and dissemination of a toolkit1 for chairs and deans and work-life Web resources for current and prospective faculty. Also in Year 3, ISU ADVANCE partnered with the EVPP Office to offer a workshop for department chairs on faculty flexibility, and the ISU ADVANCE workshop for chairs in Spring 2009 emphasized best practices for P&T in light of university policies, such as flexible tenure track options. The approval of a “Modified Duties” policy by the Faculty Senate in January 2009 was facilitated by efforts in one STEM focal department to codify departmental practices that offered teaching relief for new parents. ISU ADVANCE mobilized other groups on campus to compile and disseminate data that proved instrumental in making a successful case for the policy (approval of the policy is on hold due to financial constraints).

Goal 2: To identify and address department-specific barriers to the advancement of women faculty in STEM disciplines, we have focused our efforts on increasing understanding about how departmental structures, cultures, and practices contribute to or detract from faculty success. As specified in the grant proposal, and as adjusted in the modified budget submitted March 2007, we consulted with the Deans of 3 focal colleges (Agriculture & Life Sciences, Engineering, and Liberal Arts & Sciences) in the selection of 9 focal departments. In sets of 3, the focal departments are being phased into the project that we refer to as ISU’s Collaborative Transformation (CT) project (referred to in grant application as Participatory Action Plan for Comprehensive Institutional Intervention). Round 1 departments began in Year 1, Round 2 began in Year 3, and Round 3 will begin in Year 4.

The CT project is designed to compile department-level information about workplace climate, and then to use this information to develop collaborative strategies for enhancing aspects of departmental climate that can positively impact faculty recruitment, retention and promotion. CT is a project that respects differences across departments in work cultures departments embrace, routine departmental practices, and structures for organizing work. Climate results, which are based on the analysis of focus group and interview data from each department, are “mirrored back” to faculty. After faculty in each department receive the results of the climate study, they develop their own department-specific change strategies. ISU ADVANCE researchers work with the departments throughout this process. Results from the CT project are disseminated at ISU workshops, which are attended by ISU faculty and administrators. Results are also disseminated at STEM and SBS professional association conferences and in academic journals. Details of CT Project structure and methods are explained in the Year 3 Annual Report.

CT Departmental Climate Project Findings, Impact, and Dissemination. Results from focal department climate studies have been analyzed and reported in confidential departmental reports; and analysis of data for each first-round focal department revealed 9-10 key findings per department. A synthesis of climate issues based on the analysis data across all 3 of the first round focal departments is available in our report, “ISU ADVANCE Collaborative Transformation: Synthesis Report of Year 1 Department-Level Findings” (Bird and Hamrick 2008). Six main themes emerged from the first round of the CT project: spatial proximity and facility issues; gaps between stated ideals and reality; mentoring of assistant and associate professors; democratic participation; recruitment and retention; and family-friendly policies. Following the implementation of change strategies in each of the first round focal departments, a second synthesis report of departmental transformation outcomes was also prepared describing progress on addressing such

1 Adapted with permission from the UC Faculty Family Friendly Edge (http://ufamilyedge.berkeley.edu/)
issues, see “ISU ADVANCE CT Project: First Round Focal Department Transformational Strategies and Outcomes (January 2008 – January 2009)” (Bird, Constant, Janzen, Powell-Coffman 2008). These synthesis reports have been widely distributed on campus, are available on the Web site, and were the focus of well-attended workshops in April 2008 and January 2009. These synthesis and dissemination processes will be repeated for round 2 and 3 departments; for example, second round focal department reports are currently in draft form and will be reported in a second “synthesis report” of climate study findings across the first and second round focal departments next year. These reports outline a process other departments can use to address climate issues, that is they serve as a portfolio of resources.

To date, CT dissemination includes 8 reports for the ISU campus; 1 report for the NSF ADVANCE PI meetings; multiple papers, proceedings, and posters for Education, STEM, Philosophy, and Social Science disciplinary conferences; 1 published book chapter, and 1 forthcoming journal article. Our co-PI team has also produced a model document on joint authorship.

**CT Project Progress to Date and Future Outlook.** Over the first 3 years of the ISU ADVANCE Program, much has been accomplished with the CT project, and the analysis produced in departmental and synthesis reports confirms the continuing existence of barriers to advancement noted in our grant proposal; the faculty in the first round focal departments have accepted responsibility for needed change and have implemented many of the change strategies they developed themselves. ADVANCE Professors in second round departments are currently working with their faculty and ISU ADVANCE researchers to discuss the primary findings for their departments and to revise drafts of each focal department report. During years 4 and 5 of the program, the impact of the CT project will also be assessed using quantitative data from the COACHE and AAUDE surveys. ISU first administered the COACHE and AAUDE surveys in 2005 and 2008 respectively; by administering these surveys again in 2009 and 2011, we will be able to draw comparisons between focal and non-focal departments in levels of workplace satisfaction (in Time 1 and Time 2) and to ascertain how CT efforts have improved workplace climate in the focal departments.

**Goal 3: Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks.** Since the proposal was written (2005), five high level academic leadership positions have been filled at Iowa State, three by women (Executive Vice President & Provost, Vice President for Research and Economic Development, Dean of Human Sciences), one by an Hispanic male (Dean of Design), and one by a white male (Dean of Engineering). Each of these new leaders is committed to ISU ADVANCE Program goals. The College of Engineering Search Committee and Diversity Committee collaborated on making diversity a key part of finalist interviews. We are creating a critical mass of top administrators who are aware of, and committed to, improving the status of women.

Indicator data show that the number of women full professors has been increasing during the current decade. In 2001, the first year for which we collected indicator data, there were 86 women full professors, of which 30 were in STEM disciplines. In 2006, the first year of the ISU ADVANCE Program, there were 99 women full professors, 40 in STEM, and in 2008 there were 101, 44 in STEM. This increase in full professors has increased the pool of women candidates for leadership positions filled internally. The largest decline among female STEM faculty has been at the associate professor level, although some of the decline is due to promotion to full professor.

Service on important committees is an important aspect of leadership. The percentage of women on college promotion and tenure committees increased slightly between 2006 and 2008. As a result, in 2008 the percentage was about the same as the percentage of full and associate professors combined (26%).

The ISU ADVANCE Program is partnering with leadership development programs across campus to strengthen the leadership opportunities for women and under-represented minorities. Following a year of planning, the Emerging Leaders Academy’s inaugural class of 20 faculty and staff began in January 2009. Of the 11 participating faculty, 8 are women. The ISU ADVANCE Program is collaborating with the Women’s Leadership Consortium (WLC) to sponsor the Women’s Leadership Series, which brings
workshops and speakers to campus. In addition, WLC and ISU ADVANCE are working to extend data collection and to monitor women’s participation in key university committees, especially those related to the budget, where diverse representation can contribute directly to institutional change.

Goal 4: Institutionalize positive change across the university. Many of the positive changes facilitated and enacted by ISU ADVANCE, some of which have already been described in this document, have been woven into the fabric of Iowa State University and will survive beyond the ISU ADVANCE Program’s funding period.

At the university level, we have promoted data-driven decision-making to deal with goals in recruitment, retention, work life integration, and job satisfaction. For example, data from the AAUDE faculty satisfaction survey have been presented by the Executive Vice-President and Provost to important leadership groups, including the faculty senate (~75 faculty representatives) and the President’s Council (~200 university administrators and leaders). Her presentations highlighted differences of gender and race in mentoring, perceived departmental climate, sources of stress, and attitudes toward career flexibility policies such as the tenure clock extension policy and part-time tenure-track positions. The Provost’s presentations have emphasized the importance of these issues to the excellence of the university and have enhanced discussion with deans, department chairs, and faculty leaders.

Another way that members of the ISU ADVANCE co-PI team and Council have helped to create sustainable change is through their service on university-wide committees, working groups, and grant-writing teams. ISU ADVANCE members are part of the following efforts: (1) Women’s Leadership Consortium, which includes among its mission statement, “promoting institutional change by providing women's perspectives while introducing new initiatives, monitoring current policies and programs, and maintaining priorities across campus”; (2) FIRES (Faculty Initiatives to Recruit and Retain Excellence in STEM), a faculty working group with the goal of collaborating on externally funded initiatives to increase the number of under-represented minorities and women, with a special focus on STEM disciplines; (3) development of an Innovation through Institutional Integration (I3) Program (NSF); (4) the University Committee on Women, which advises the President and Executive Vice President and Provost on issues of gender equity; and (5) the Advisory Committee on Diversity Program Planning and Coordination, a university-wide committee charged with ensuring success in and accountability to diversity goals.

Our Equity Advisors, in the university’s three largest colleges, have worked with ADVANCE Professors in six focal departments to bring such university-wide discussions to the college level. Equity Advisors have helped design new workshops on promotion and tenure and have ensured that ISU ADVANCE goals were guiding the work of Deans’ Cabinets and college diversity committees. The women and men in these roles are articulate about ISU ADVANCE change efforts, and are developing lasting leadership skills. In fact, the power of the CT approach lies in the fact that faculty members in focal departments engage in developing and managing their own change efforts. This creates a culture supporting the maintenance of a positive work climate for women and men. And when change is made at the levels of cultures, practices, and structures, the academic departments have the capacity to sustain transformation through changes in administration and demographics. During Year 3 we have broadened the group of Equity Advisors and ADVANCE Professors by rotating new people into these leadership roles. We are also cognizant of the need to direct activities in ways that will advance the careers of the program participants who are associate professors—and have had direct discussions with deans and department chairs about this advancement issue.

Evaluation Progress

We are working with a staff member from the EVPP Office to develop a synthetic evaluation of our program. The evaluation framework applied to the ISU ADVANCE program follows Stake’s (1972) responsive evaluation and is responsive to the realities of the program and to the reactions, concerns, and
issues of the participants. Due to the nature of the comprehensive institutional intervention, our evaluation seeks to measure understanding of transformation and to include different perspectives when reporting the success or failure of the program.

Embedded within this summary of our program are several examples of significant accomplishments that stem from ISU ADVANCE evaluation including the collection of institutional data, development of numerous workshops and resources to overcome known barriers, dialogue about and changes to university policies, identification of common departmental barriers, and implementation of change strategies resulting from CT efforts. Additional effort is needed to evaluate how specific ISU ADVANCE initiatives support comprehensive institutional change. The following activities are planned for Years 4 and 5 to support the evaluation of ISU ADVANCE:

- Development of an evaluation plan with attention to objectives, outcomes, program elements, and assessment activities. The evaluation plan follows a logic model method to provide a process for linking activities to outcomes (and in turn evaluation of impact).
- Creation of a synthesis report that integrates findings across program activities, documents programmatic efforts that address objectives, and identifies areas of need for additional programmatic and assessment effort.
- Review and interpretation of key performance measures.
- Strategic use of the evaluation plan, synthesis report, and performance indicators to engage ISU ADVANCE stakeholders in a conversation to support progressive focusing on program goals.

Future Outlook

We are at a critical point in the development of our program, with an effective organizational structure and committed participants—from co-PIs to the Executive Vice President and Provost. Our CT project is complex, with research leaders who are proficient in juggling the details of handling three cohorts of departments at different stages of participation. And we find a constant need to recalibrate the dual focus on top-down (our impact through policy change, training, and community and resource building) and bottom-up (CT activities and ADVANCE Professor work). This leaves the Equity Advisors and college representatives in a critical middle ground that will be key to sustainability of the project past the funding period; we already have commitments from our three focal deans to continue the Equity Advisor position. We are impatient that we have not yet seen the impact of our work in the numbers of women faculty in STEM, but our project is designed to build institutional change in a slower way that will last. Our geographic location means we face additional challenges in recruiting and retaining faculty of color in STEM, but next year, we will be adding to our successful ISU ADVANCE Scholars program a new graduate assistant (funded by the EVPP) to enhance our work with women faculty of color. We will also be building our connection to AGEP and its support for advanced graduate and early career persons of color in STEM.

While we envisioned a “toolkit” as a key product of our work at the grant writing stage, we have recognized the need to develop more flexible and dynamic resources for faculty and administrators on the front lines of institutional transformation. The term “toolkit” implies that “problems” can be easily fixed, and we know that, instead, systemic barriers require intervention and sustained discussion at many levels. We believe our resources will be more flexible and lasting. With the commitment of Institutional Research and brand new data on faculty recruitment from Equal Opportunity and Diversity, we have accumulated rich data resources to help us measure the impact of our program. With our second set of COACHE data and another external evaluation in Year 4, we will be able to continue our evaluation at a new level. Working with the Women’s Leadership Consortium and the Executive Vice President and Provost, we also have plans to produce a portrait of leadership with benchmarks for progress in gender representation, particularly at the level of department chair. We have demonstrable progress in the ISU ADVANCE program, but we also recognize the importance of our continued efforts at institutional transformation.
Salary Equity Study
2005-2008

May 2010

Jason Pontius and Sandra Gahn

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Salary Equity Study
2005-2008

This report examined four years of faculty salary data at Iowa State University (2005-2008) to determine if significant salary differences existed by gender or race/ethnicity. This report was conducted for the ISU ADVANCE program and was supported by funding from the National Science Foundation.

The method of analysis used in this report included both single and two-equation multiple regression models to examine salary equity issues. All tenured and tenure-eligible faculty were included in this study with the exception of administrators and librarians. Data were analyzed within colleges (and college sub-categories in the case of the College of Liberal Arts and Sciences) in order to account for disciplinary differences in salary. It was not possible to analyze the data at the department level because the sample size would have been too small to meet the assumptions of multiple regression.

Key findings from this study include the following:

1. Statistically significant differences in salary by gender were found across all four years for faculty in LAS-Social Sciences and Veterinary Medicine.

2. The level of research productivity was a major factor in the salary differences by gender for Veterinary Medicine, but did not influence the level of significant difference in LAS-Social Sciences.

3. No statistically significant differences were found in faculty salaries by race/ethnicity.

4. No other colleges had statistically significant differences in salary by gender.

This report indicates the need to continue to examine salary equity issues at Iowa State University. We recommend that the Executive Vice President and Provost’s Office and individual college Deans continue to monitor salary equity in the future. Limitations of this study include the fact that productivity data were self-reported and did not account for the level of quality within productivity measures. The variables used in this study were limited to those that were available in administrative data systems and did not include sponsored funding measures, nor individual personnel decisions that might affect a faculty member’s salary.
Introduction

This report contains research that was funded by National Science Foundation ADVANCE Institutional Transformation Grant No. SBE-06003999. The ISU ADVANCE program seeks to increase the participation and advancement of women in academic science and engineering careers (Iowa State University ADVANCE, 2008). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

This report examined four years of faculty salary data at Iowa State University (2005-2008) to determine if significant salary differences existed by gender or race/ethnicity. While each year of salary data was analyzed independently, this report also provides analysis of trends across the years.

Iowa State University strives to provide equitable remuneration for all its employees. It is important to consider as many factors as possible in determining whether salary differences are the result of experience and productivity or the result of inequitable treatment. Factors such as academic discipline, rank, and research productivity influence faculty salary. This report will use a two-equation regression analysis design to determine whether salary differences exist by gender or race/ethnicity at the college level after controlling for known factors that influence faculty salary.

Overview of Faculty Salary Studies

Past research on college and university faculty across the United States has found significant differences in salary by gender and race/ethnicity (Barbezat, 1987; Nettles, Perna, & Bradford, 2000; Ransom & Megdal, 1993). Some examples include two national studies of faculty that reported women earning about 7-10% less than men (Barbezat, 1987, 1991), and a 2005 University of Michigan study that found women faculty were paid about 2.5% less than men when controlling for all known variables (Schnoeni, Andreski, Wolff, & Corcoran, 2007).

While many salary equity studies have been conducted at the national and institutional level, no universal guidelines exist for conducting such a study (Toutkoushian, 2002). Most commonly, a single-equation multivariate regression model is used, though economists prefer a two- or three-equation model that does not assume identical pay structures across groups (Toutkoushian & Hoffman, 2002). For comparison purposes, this report incorporates both a single-equation model and a two-equation method similar to those suggested by Blinder (1973), Galchus and Whiteside (1993), Gilmartin and Hartka (1991), and Oaxaca (1973).

Previous Salary Studies at Iowa State University

Two recent studies at Iowa State University have examined salary equity among faculty.

The first study, Does Gender Matter?: A Report on Gender and Salary in Science, Technology, Engineering, and Mathematics Faculty at Iowa State University, was conducted in 2004 by Rhonda de Cook and Dr. Alicia Carriquiry from the ISU Statistics Department. It examined salary equity by gender among Iowa State’s science, technology, engineering and math (STEM) faculty, excluding Veterinary Medicine, for fiscal year 2004. The study used two single-equation regression models to
determine if salary differences existed: The first model examined all STEM faculty and the second used matched-pair subsets to compare faculty from similar academic discipline, rank, years-in-rank, and sponsored funding levels. Neither model found significant salary differences by gender.

The 2004 Department of Statistics study differed from this ADVANCE study in three primary ways:
1. The 2004 study did not include faculty productivity data (e.g., journal articles, book chapters, patents) in its analysis. Instead, it used sponsored funding as a proxy for productivity.
2. The 2004 study used matched-pair subsets to compare faculty within a single-equation model, instead of employing a two-equation regression model.
3. The study dropped from the analysis any assistant or associate faculty who had been in rank for more than nine years.
4. The study did not include Veterinary Medicine faculty.

The second study, Wage Disparity: A Comparison of Residual Differences in Predicted and Actual Faculty Wages by Gender at Iowa State University, was a doctoral dissertation conducted in 2003 by Harold Lee. It examined faculty salaries during five years (1991, 1992, 1998, 1999, & 2000) and found few significant salary differences by gender or race/ethnicity. Like the current study, the 2003 dissertation employed single-equation and two-equation regression models in its approach.

The 2003 dissertation differed from this ADVANCE study in three primary ways:
1. The 2003 dissertation did not include faculty productivity data (e.g., journal articles, book chapters, patents) in its analysis.
2. The 2003 dissertation utilized 19 different “clusters” of faculty instead of the 10 college categories utilized in this study. The primary difference in number of categories resulted from the dissertation’s split of Liberal Arts & Sciences into seven categories (i.e., physical sciences, hard sciences, soft sciences, social sciences, math, humanities, biosciences) and the inclusion of Library faculty in the model.

Methodology

Population

This study used data from the ISU Office of Institutional Research to examine the salaries of Iowa State University faculty employed between 2005-2008. Initially, all faculty regardless of rank, tenure status, or full- and part-time employment were included in the study.

Salaries were captured from the October payroll records for each year and were converted to full-time equivalent, nine-month contract values. All faculty salaries were standardized to make more meaningful salary comparisons between part-time and full-time faculty, and faculty with 9- and 12-month appointments. Full-time (FTE), nine-month contract equivalents were used because this represents the typical faculty employment contract at Iowa State. The natural logarithm of FTE 9-month salary was used as the dependent variable for some models.

Faculty who served in administrative roles were excluded from the analysis. This group consisted of department chairs, deans, and those holding titles of president or provost (including assistant and associate deans or provost positions). Administrators were dropped because their salaries were significantly higher than non-administrative faculty salaries and their salaries are usually determined independent of academic discipline, rank, and level of research productivity. In 2007, the average administrative salary was $134,471 (SD = $39,747) while the average faculty salary was $76,202 (SD = $31,224). Additionally, Library faculty, while officially employed as faculty, were dropped from the analysis due to their unique status and largely administrative roles.
Only tenured and tenure-eligible faculty were included in the final models because productivity data were available only for full, associate, and assistant professors. Non-tenure-eligible faculty were dropped from the model.

**Single-equation analyses**

*Dependent and independent variables*

In order to control for variables that could influence the amount of a faculty member’s salary, Ordinary Least Squares (OLS) linear regression analysis was utilized. The dependent variable was faculty salary converted to a nine-month equivalent.

As is typical of salary data, faculty salaries showed a non-normal distribution that violated an assumption for conducting regression analysis. Two adjustments were made to correct for this non-normal distribution. First, the nine-month equivalent salaries were converted to their natural log. Second, robust standard errors were used with the regression models to account for issues of possible outliers and heteroskedasticity (Ferber & Loeb, 2002).

For the purpose of comparing the fit for each dependent variable, regression models show results for both dependent variables: the adjusted salary in dollars, and the log of adjusted salary (Oaxaca & Ransom, 2002). In most cases, no significant difference was evident in fit between the two models. Therefore, for ease of interpretation, coefficients in dollar amounts were reported where possible.

Past salary equity research studies were examined to find variables besides race/ethnicity and gender that may influence faculty salary (Ferber & Loeb, 2002; Perna, 2003; Stratham, 2000). Several significant factors were reported including: years worked at an institution, graduate faculty status, time-in-rank, and academic discipline. Ferber and Loeb (2002) also recommended the use of academic productivity or number of publications as an independent variable despite the fact that women tend to publish less than men. While faculty rank would seem a highly relevant predictor of salary, past research identified rank as a potentially problematic variable due to possible gender or race bias in the tenure and promotion system (Stratham, 2000). For this reason, several authors recommend running two models, one that includes rank and one that omits it (e.g., Oaxaca & Ransom, 2002; Toutkoushian & Hoffman, 2002). For this study, models that include rank and others that exclude rank were run for the purpose of comparison.

The authors chose not to include time-in-rank in contrast to the two Iowa State salary equity studies referenced above. After initially including time-in-rank in the 2007 data analysis, it was found to make no substantive difference in model fit, level of statistical significance or model coefficients. Additionally, statistical power was lost when assistant and associate faculty with 9 or more years in rank were dropped from the analysis. This resulted from the loss of 149 associate professors and 13 assistant professors from the analysis. Finally, the College of Design had significantly more faculty with time-in-rank of 9 or more years than other colleges, thus creating a possible bias in the salary analysis. See Appendix E for additional information.

For the academic college variable, each ISU college was used with the exception of the College of Liberal Arts and Sciences (LAS). The College of LAS includes a diverse group of disciplines from humanities to hard sciences with adjusted salaries ranging from $24,000 to $274,000. For this reason, LAS was separated into three categories: LAS-Humanities; LAS-Social and Behavioral Sciences (SBS); and LAS-Sciences, Technology, and Mathematics (STM). A reviewer of this report recommended combining departments of the same discipline that cross college category lines. For example, there are Economics and Sociology faculty assigned in both Agriculture & Life Sciences and LAS-SBS college categories. Based on the recommendation, all Agriculture & Life Sciences Economics and Sociology faculty were combined with the Economics and Sociology faculty in LAS-SBS, respectively. This recalibration of college categories was tested using the new definition of LAS-SBS for the two-equation model across all four years. Ultimately, this recalibration was not
used for this report after no substantive or statistically significant differences by gender or race/ethnicity were found between the results for the original and new LAS-SBS college category.

Coefficients for LAS-Humanities are not listed in the Appendix B single-equation results because it served as the referent college category for the regression analysis. All other college category coefficients are relative to LAS-Humanities.

**Faculty productivity data**

Faculty productivity can significantly influence the salary of a faculty member. Well-published faculty members are often better known in their field and may be sought out by government, industry, or other colleges and universities. Despite its importance to faculty work, it can be difficult to obtain good measures of faculty productivity.

This analysis used faculty self-reported productivity numbers (e.g., number of journal articles, books or book chapters, patents, creative or artistic products) which are collected each year by the Executive Vice President and Provost’s Office in a Faculty Activity report. To adjust for changes in productivity from year to year, this analysis used an average of three years of data (FY 2005-2007; 2008 data was not available at the time of the analysis). If less than three years were available, productivity data were averaged across the number of years that data were available. All productivity measures were initially incorporated into the models, but only significant measures (e.g., only peer-reviewed journal articles instead of non-peer-reviewed journal articles) were included in the final regression models. This resulted in dropping from the final model the following productivity measures: books, non-peer-reviewed journal articles, book reviews, university service, and awards.

Self-reported productivity measures carry inherent validity issues. However, including productivity data allowed the researchers to make more accurate predictions of faculty salary. It is important to note the limitation of these data. Besides being self-reported, only the number of publications were measured, not the quality or prestige of the publications (although we were able to distinguish between peer-reviewed and non-peer reviewed publications). It also resulted in listwise deletion, or removal from the analysis, of some lower-paid new faculty who lacked significant productivity measures. In order to control for outliers or misreported numbers, the three-year average of each productivity measure was converted to a z-score and any value greater than four standard deviations was deleted. For additional information about productivity measures see Appendix D.

**Multicollinearity issues**

Multicollinearity, or high correlation between some variables can create problems with the analysis. For example, presentations were a statistically significant measure of productivity in some models but were dropped due to multicollinearity issues with the number of journal articles. This was likely the result of a tendency among faculty to present research at conferences that would also be published as journal articles. After these adjustments were made, the final model included six productivity indicators that were significant predictors of faculty salary: book chapters, peer-reviewed journal articles, patents, software, performances, and professional service.

Additionally, some of the other model variables (e.g., tenure status, academic rank) also created problems with multicollinearity. To resolve these issues, tenure status and years since earning highest degree, were dropped from the model.

**Four single-equation models**

The final single-equation regression analysis consisted of four models. Model 1 used the log of adjusted salary and excluded rank as a variable. Model 2 used the adjusted nine-month salary equivalent and excluded rank. Model 3 included rank with the log of adjusted salary and Model 4
used both rank and the adjusted nine-month salary equivalent. See Appendix B for a complete list of the four model, single equation results for each year examined.

While these single-equation models help illustrate factors that, on average, influence salary, the two-equation analysis, detailed below, can identify factors specific to each college that influence faculty salary. Additionally, it can identify disparities between predicted and actual salary for individual faculty.

**Two-equation analysis**

In the two-equation analysis, for each fiscal year the faculty population was split into 10 college categories. Next, all female faculty and all non-White male faculty were dropped from the model. Multivariate OLS regression models using FTE nine-month salary as the dependent variable and all independent variables previously identified were then run using the sub-group of White male faculty for each college or LAS sub-college group.

The initial regression was conducted using all available productivity indicators to investigate possible differences in productivity emphasis by college. For example, despite the fact that book reviews were not a statistically significant predictor of salary in the single-equation analysis, it was hypothesized that for some colleges, like LAS-Humanities, book reviews might be a significant predictor of salary. In fact, several productivity measures dropped from the single-equation analysis were found to be significant predictors of salary for some college categories. Robust standard errors were used to compensate for moderate outliers in salary amounts.

Once the initial regression model was run for each college category, a secondary model was created that included only those independent variables from the initial model that were significant predictors of FTE salary within each college. This secondary model served as the “White male” salary equation that was used to predict the “White male” expected salary for all faculty members within each college. White male salaries were used as the baseline on the assumption that if salary discrimination existed, White male faculty members were less likely to be the recipients of such discrimination. Two sample t-tests for unequal variances were used to determine if the residuals, or differences between actual and predicted FTE salary, were statistically significant by race/ethnicity or gender. For example, if Black male faculty salary residuals in a college were significantly lower than those of White male faculty from that college, one might question whether Black faculty were underpaid.

Table 1 below provides a breakdown of the single and double-equation models used for this report.

**Table 1: Variables in Models.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Single-Equation Model</th>
<th>Double-Equation Model</th>
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</thead>
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<tr>
<td>Dependent Variables</td>
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<td>9-month full-time equivalent salary</td>
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<td></td>
<td>Logarithm of 9-month full-time equivalent</td>
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<td>Faculty Included</td>
<td>Tenured &amp; tenure-eligible faculty</td>
<td>Tenured &amp; tenure-eligible faculty</td>
</tr>
<tr>
<td></td>
<td>Faculty with 1 or more productivity measures</td>
<td>Faculty with 1 or more productivity measures</td>
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<tr>
<td></td>
<td>Non-administrative faculty</td>
<td>Non-administrative faculty</td>
</tr>
<tr>
<td>Level of analysis</td>
<td>ISU population of faculty</td>
<td>College level analysis</td>
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<td>Academic college</td>
<td>Productivity measures</td>
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<td>Productivity measures</td>
<td>Years since earning degree</td>
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<td>Race/ethnicity</td>
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<tr>
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<td>Gender</td>
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</tr>
<tr>
<td></td>
<td>Years since earning degree</td>
<td></td>
</tr>
</tbody>
</table>
Results

Single-Equation Model Findings

Controlling for relevant factors such as college, rank, and time since degree, female faculty on average are paid less than male faculty. Faculty of color are paid more on average than White male faculty. However, while some models for some years studied did show statistically significant differences by gender, no statistically significant differences were found by race/ethnicity in any model for any year studied.

In 2005 and 2006, a small statistically significant difference was observed by gender for Models 1 & 2 that omitted rank, and Model 3 that included rank with the natural log of salary. These results suggest that if rank is not considered a factor in salary, female faculty in 2005 & 2006 were paid significantly less (about 3% or $2,400 less) than male faculty. When rank is included in the model, female faculty in 2005 & 2006 were paid significantly less (about 2% less) than male faculty. In 2007 there was a small statistically significant difference found by gender for Model 1 (which omitted rank and used the natural log of salary). As with the findings for Model 1 in 2005 and 2006, female faculty in 2007 were paid significantly less (about 3% less) than male faculty. No statistically significant differences by gender were found for Models 2, 3, or 4 in 2007. No statistically significant differences were found by gender in any model for 2008 data. See Appendix B for additional information.

Two-Equation Model Findings

Using a two-equation model to examine how closely actual faculty salaries came to the predicted salaries based on White males, the study found significant salary differences by gender in two college categories. Female faculty in the College of Veterinary Medicine and LAS-Social Sciences received significantly lower salaries than their male colleagues for each of the four years examined.

Female faculty in LAS-Social Sciences received between $14,000 - $17,000 less in salary, depending on the year examined, than would be predicted for similar White male faculty in LAS-Social Sciences. Of those faculty in LAS-Social Sciences whose actual salaries were furthest below the salaries predicted by the model (determined by those with a salary residual of less than one standard deviation), female full professors comprised the vast majority. To test the effects of research productivity on the model, productivity measures were dropped from the model. This resulted in a slight narrowing of the gender pay gap for LAS-Social Sciences (female faculty received between $9,000 - $16,000 less) but there was no substantive difference in the level of statistical significance by gender.

Female faculty in Veterinary Medicine received $7,000 - $11,000 less in salary than would be predicted for similar White male Veterinary Medicine faculty. Within Veterinary Medicine, associate and assistant faculty (with approximately equal numbers of men and women) comprised the vast majority of faculty whose actual salaries were furthest below the salaries predicted by the model (salary residual of less than one standard deviation). However, when productivity was dropped from the model for Veterinary Medicine, there was no longer a significant difference in salary by gender, but female faculty received between $2,800 - $5,000 less than male faculty.

Statistically significant differences in salary by gender were also found in the College of Design in 2005 and 2008 data, and LAS-Humanities in 2005, but not consistently across all years studied. Some statistically significant differences were found between the salaries of White male faculty and other faculty (i.e., female faculty and non-White male faculty), but because no statistically significant differences in faculty salary were found by race/ethnicity in any college, the differences were likely influenced by the significant differences found by gender. See Appendix C for graphs and additional information.
Discussion

The analysis showed no statistically significant differences in Iowa State University faculty salaries by race/ethnicity and limited statistically significant differences by gender. Statistically significant gender differences were found across all four years within the College of Veterinary Medicine and LAS-Social Sciences. The findings suggest the existence of salary inequities within these two groups that should be examined more closely.

Table 2 below suggests that these salary differences may have resulted from male and female faculty being rewarded for different types of productivity. Female faculty salaries in LAS-Social Sciences were significantly influenced by the number of book chapters while White male faculty salaries were influenced more by professional service. For additional information about productivity data used in this report, see Appendix D. However, even when productivity measures were dropped from the model, female faculty in LAS-Social Sciences were still paid significantly less than male faculty.

Table 2: Variables with a statistically significant impact on faculty salary, by year and gender.

<table>
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<th>Year</th>
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<th>Vet. Medicine</th>
</tr>
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<tr>
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<td>Female</td>
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<td>2005</td>
<td>Professional service</td>
<td>Book chapters</td>
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<td>Rank</td>
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<td>2006</td>
<td>Rank</td>
<td>Book chapters</td>
</tr>
<tr>
<td></td>
<td>Rank</td>
<td>Rank</td>
</tr>
<tr>
<td>2007</td>
<td>Professional service</td>
<td>Book chapters</td>
</tr>
<tr>
<td></td>
<td>Rank</td>
<td>Journal articles</td>
</tr>
<tr>
<td>2008</td>
<td>Rank</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When productivity measures were dropped for Veterinary Medicine faculty, the difference in salary by gender was no longer statistically significant. This suggests that productivity measures are influencing the predicted salaries in the model. This may be due to the fact (as shown in Table 2 above) that White male faculty salaries were significantly and positively impacted by book chapters and book reviews, while salaries of female faculty with comparable numbers of book chapters and reviews were not similarly impacted (see Appendix F for a comparison between male and female faculty in Veterinary Medicine).

Another possible reason why productivity may impact salary differences relates to expectations of research productivity by rank. Faculty of lower rank in Veterinary Medicine may be held to a higher standard of research productivity than faculty of higher rank. This hypothesis is supported by the finding that of those faculty with the greatest negative difference between actual salary and predicted salary, most were assistant and associate faculty. This would impact female faculty more because there are more women in the assistant and associate ranks (39% and 34%, respectively) than in the full professor ranks (17%).
In addition to the influence of productivity data, there are other possible reasons for why female faculty might be paid less than male faculty. Two reasons were suggested by the results of the 2008 Iowa State University Faculty Satisfaction survey (Pontius & Gahn, 2009). The survey found that female faculty who received an outside job offer were less likely than male faculty to use the offer to negotiate a higher salary. Instead, women faculty are more likely to use an offer to negotiate for accommodations such as partner benefits, graduate assistants, or other non-salary benefits. Furthermore, 34% of all female faculty (40% for female faculty in STEM fields), compared to 15% of male faculty (13% for male faculty in STEM fields) have a spouse or partner who is also a faculty member at Iowa State. For these female faculty members, it may be more difficult to leverage an outside offer into a salary increase without also having a job offer for their spouse or partner.

We recommend that the Executive Vice President and Provost’s Office and individual college Deans continue to monitor salary equity in the future. Limitations of this study include the fact that productivity data were self-reported and did not account for the level of quality within productivity measures. The variables used in this study were limited to those that were available in administrative data systems and did not include sponsored funding measures, nor individual personnel decisions that might affect a faculty member’s salary.

The equitable distribution of salary, start-up costs and space resources remain areas of concern for the ISU ADVANCE grant.

Addendum to the Study

Given statistically significant differences in salary by gender across all four years for faculty in Veterinary Medicine and LAS-Social Sciences, additional analysis was performed for these two groups. Specifically, residuals from the fitted regressions were analyzed on an individual basis for all faculty in these groups. While complete anonymity was preserved in analysis up to this point, in the residual analysis, cases where an individual fell far below the predicted wage were discussed with the relevant college dean and department chairs in order to assess potential missing regressors in the model, functional issues, measurement error, and/or systematically lower salaries. These discussions proved useful in thinking about ways to improve the models for the future and salary adjustments that should be made.

The deans have taken seriously the data presented in this report but have concerns that it may not reflect the widely different position responsibilities and qualifications of the individuals involved. For example, in the College of Veterinary Medicine, some faculty are essentially researchers while others are teachers or clinical specialists. Although each is highly valued, market forces require higher salaries to be paid to clinical faculty. These issues prevent the typical measures of academic productivity from being predictors of salary.

Both the College of Veterinary Medicine and the College of Liberal Arts and Sciences are committed to having a diverse workforce and student body where each individual can succeed. A concerted effort has been made to address salary equity issues and to recruit and retain members of underrepresented groups in faculty and administrative positions.

Acknowledgements:
The authors would like to acknowledge the contributions of the following people in preparing this report: Dean Michael Whiteford, Dean John Thomson, and Associate Dean Arne Hallam.
References


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## Appendix A: Regression Model Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE_B_BASE_SLRY</td>
<td>faculty salaries converted to typical full-time 9-month equivalent</td>
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<td>natural log of FTE_B_BASE_SLRY</td>
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<td>dummy variable for assistant professor</td>
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<td>assoc_prof</td>
<td>dummy variable for associate professor</td>
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<td>dummy variable for sex where female = 1</td>
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<tr>
<td>white</td>
<td>dummy variable where White faculty = 1</td>
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<td>dummy variable for faculty where Asian, Black, Native American, and Hispanic faculty = 1</td>
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<td>dummy variable for the College of Human Sciences</td>
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<td>nt_track</td>
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<td>annual number of book chapters authored, three year average with outliers removed (z &lt; 4.0)</td>
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<td>journals</td>
<td>annual number of peer-reviewed journal articles authored, three year average with outliers removed (z &lt; 4.0)</td>
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<td>annual number of patents earned, three year average with outliers removed (z &lt; 4.0)</td>
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<td>annual number of software programs written, three year average outliers removed (z &lt; 4.0)</td>
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<td>profservice</td>
<td>annual number of professional service hours, three year average outliers removed (z &lt; 4.0)</td>
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<td>performances</td>
<td>annual number of performances, three year average with outliers removed (z &lt; 4.0)</td>
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<td>years_dgr</td>
<td>number of years from receiving last degree to present</td>
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<tr>
<td>years_isu</td>
<td>number of years employed at Iowa State University</td>
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### Appendix B: 2005 Single Model Regression Results

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<th></th>
<th>(Model 1) Log Salary</th>
<th>(Model 2) FTE Salary</th>
<th>(Model 3) Log Salary w/ Rank</th>
<th>(Model 4) FTE Salary w/ Rank</th>
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<td>No Rank</td>
<td>w/ Rank</td>
<td>w/ Rank</td>
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<td>(0.0101)</td>
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<td>--------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assoc. Professor</td>
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<td></td>
<td>(0.0129)</td>
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<td>intercept</td>
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Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

LAS-Humanities served as the referent for college category
### Appendix B: 2006 Single Model Regression Results

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<tr>
<th>2006</th>
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Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001
LAS-Humanities served as the referent for college category
### Appendix B: 2007 Single Model Regression Results

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<td>0.00421 (0.0148)</td>
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<tr>
<td>Ag &amp; Life Sci.</td>
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<td>13653.0 (1807.8)</td>
<td>0.185 (0.0189)</td>
<td>12859.4 (1737.1)</td>
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<td>0.104 (0.0228)</td>
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<td>LAS-Social Sci.</td>
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<td>19039.4 (3313.7)</td>
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Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

LAS-Humanities served as the referent for college category
## Appendix B: 2008 Single Model Regression Results

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<td>Ag &amp; Life Sci.</td>
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**Professor** 0 0 0 0

**Asst. Professor** -0.332*** -27919.9*** (0.0230) (2147.7)
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Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

LAS-Humanities served as the referent for college category
Appendix C: Two Model Regression Results

For any statistically significant results, this table shows the significance level or $p$ values by college category and year for gender, race & ethnicity, and White male versus other faculty (i.e., female faculty and non-White male faculty). Statistically significant results were found by gender across all four years for LAS-Social Sciences and Veterinary Medicine.

**Significant Differences in Faculty Salary by Gender and Race/Ethnicity**

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAS-Humanities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>LAS-Social Sciences</td>
<td>0.02</td>
<td>0.00</td>
<td>0.05</td>
<td>0.00</td>
<td></td>
<td>0.01</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td>LAS-STM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vet Medicine</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 = Significance levels indicate one-tailed level of significance
2 = Two-tailed level of significance was required based on past evidence that ISU faculty of color are often paid more than peers

One-tailed levels of significance at $p = 0.05$ were used to test for differences by gender and White male versus other faculty. This was done because past research and ISU campus averages indicated that women were paid less than men. Two-tailed levels of significance at $p = 0.05$ were used for tests of difference by race & ethnicity. While past research has shown faculty of color to be paid less than White faculty, ISU campus averages indicated that faculty of color were paid more than White faculty. Not knowing the direction of the difference that this report might find, a two-tailed level of significance was chosen.
Graphs of Predicted vs. Actual Salaries for Colleges in 2007 for which no statistically significant differences were found by gender.

These seven graphs depict colleges in 2007 for which there was not a statistically significant gender difference in the gap between predicted and actual faculty salaries. These graphs are shown as a baseline for comparison to graphs in which statistically significant differences were found.
Notes on the Two-Equation Tables and Graphs

**Note on the Tables:** In the tables shown below, the mean amount shown is the average difference or average residual between the predicted and actual salary for each subgroup. Using the two-equation model, a salary was first predicted for each faculty member in an academic college. Then each faculty member’s actual adjusted salary was subtracted from this predicted salary. For this analysis, White male faculty have a predicted average residual of zero. If the mean is a negative or positive number, it shows the amount in dollars that the group’s average salary is above or below the average salary for White male faculty.

**Note on the Graphs:** The graphs below depict plotted points for each faculty member in each academic college (represented by squares, circles, and triangles). For each plot point, an imaginary line can be drawn to the predicted salary scale at the bottom of the graph to the actual salary scale at the left side of the graph. The linear fit line represents the regression salary prediction for each group depicted. Faculty plot points that are above the line could be viewed as “overpaid” according to the model. Conversely, those faculty plot points below either line could be viewed as “underpaid.”
2008 Design College: Significant Salary Differences by Gender

2008 Design: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>34</td>
<td>-$6,754</td>
<td>$1,696</td>
<td>$9,890</td>
<td>-$10,205 -3,303</td>
</tr>
<tr>
<td>Male</td>
<td>39</td>
<td>-$198</td>
<td>$1,556</td>
<td>$9,717</td>
<td>-$3,348 2,952</td>
</tr>
<tr>
<td>combined</td>
<td>73</td>
<td>-$3,251</td>
<td>$1,202</td>
<td>$10,272</td>
<td>-$5,648 855</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$6,557</td>
<td>$2,302</td>
<td>$11,148</td>
<td>-1,965 1,965</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

t = -2.8485          degrees of freedom = 69.2951  Pr(T < t) = 0.0029

Note on the 2008 Design Gender Graph: For this year, because no predictors for Design College salary were significant beyond rank, the model predicts that faculty of each rank receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank.
2008 Design College: Significant Salary Differences by White Males & Other Faculty

2008 Design: Differences between Predicted and Actual Salary for White Males and Other Faculty

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Males</td>
<td>34</td>
<td>$0</td>
<td>$1,755</td>
<td>$10,233</td>
<td>-3,570 $3,570</td>
</tr>
<tr>
<td>Other Faculty</td>
<td>39</td>
<td>-$6,086</td>
<td>$1,530</td>
<td>$9,554</td>
<td>-9,183 -2,989</td>
</tr>
<tr>
<td>combined</td>
<td>73</td>
<td>-$3,251</td>
<td>$1,202</td>
<td>$10,272</td>
<td>-5,648 -855</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$6,086</td>
<td>$2,328</td>
<td>-10,731</td>
<td>-1,440</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.6140 \]
\[ \text{degrees of freedom} = 68.0747 \]
\[ \text{Pr}(T < t) = 0.0055 \]

Note on the 2008 Design White Male & Other Faculty Graph: For this year, because no predictors for Design College salary were significant beyond rank, the model predicts that faculty of each rank receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank.

![2008 College of Design](image-url)

2008 College of Design
(Linear Fit of White Male and Other Faculty Salaries)

- White Male Faculty
- Other Faculty
- LFit White Male Salaries
- LFit Other Faculty Salaries

T = Tenure-Eligible, A = Associate, P = Professor
Source: Faculty Salary Study 2008, ISU ADVANCE Program
2008 LAS-Social Sciences: Significant Salary Differences by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>24</td>
<td>-$15,010</td>
<td>$6,085</td>
<td>$29,809</td>
<td>-$27,597 -$2,423</td>
</tr>
<tr>
<td>Male</td>
<td>42</td>
<td>$576</td>
<td>$4,350</td>
<td>$28,194</td>
<td>-$8,210 $9,362</td>
</tr>
<tr>
<td>combined</td>
<td>66</td>
<td>-$5,092</td>
<td>$3,637</td>
<td>$29,545</td>
<td>-$12,355 $2,171</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$15,586</td>
<td>$7,480</td>
<td>$29,545</td>
<td>-$30,644 -$528</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

t = -2.0837 degrees of freedom = 45.8108 Pr(T < t) = 0.0214

Note on the 2008 LAS-Social Sciences Gender Graph: For this year, because full professor was the only rank that was a significant predictor of salary, LAS-Social Sciences salaries cluster into two groups, full professors and assistant/associate professors. The model predicts that faculty within these two rank clusters receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank.

2008 College of Liberal Arts & Sciences-SBS
(Linear Fit of Male and Female Faculty Salaries)

T = Tenure-Eligible, A = Associate, P = Professor
Source: Faculty Salary Study 2008, ISU ADVANCE Program
2008 Veterinary Medicine: Significant Salary Differences by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>19</td>
<td>-$10,638</td>
<td>$3,031</td>
<td>$13,213</td>
<td>-$17,007 - $4,270</td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>$425</td>
<td>$2,264</td>
<td>$17,971</td>
<td>-$4,101 - $4,951</td>
</tr>
<tr>
<td>combined</td>
<td>82</td>
<td>-$2,139</td>
<td>$1,938</td>
<td>$17,552</td>
<td>-$5,995 - $1,718</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$11,063</td>
<td>$3,784</td>
<td>$17,552</td>
<td>-$18,709 - $3,416</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.9239 \quad \text{degrees of freedom} = 40.0659 \quad \text{Pr}(T < t) = 0.0028 \]

Note on the 2008 Veterinary Medicine Gender Graph: For this year, associate professor was the only rank that was a significant and negative predictor of Veterinary Medicine salaries. This resulted in a cluster of associate professors and a distribution of full and assistant professors influenced by productivity data.
2007 LAS-Social Sciences: Significant Salary Differences by Gender

### 2007 LAS-Social Sciences: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>27</td>
<td>-$15,017</td>
<td>$4,387</td>
<td>$22,794</td>
<td>-$24,034 - $6,000</td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>$1,199</td>
<td>$3,689</td>
<td>$24,749</td>
<td>-$6,237 - $8,634</td>
</tr>
<tr>
<td>combined</td>
<td>72</td>
<td>-$4,882</td>
<td>$2,964</td>
<td>$25,146</td>
<td>-$10,791 - $1,027</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$16,216</td>
<td>$5,732</td>
<td>$27,687</td>
<td>-$4,744 - $7,444</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.8290 \quad \text{degrees of freedom} = 58.4969 \quad \Pr(T < t) = 0.0032 \]

**Note on the 2007 LAS-Social Science Gender Graph:** For this year, multiple ranks were significant in predicting LAS-Social Sciences salaries. This resulted in a more scattered distribution of predicted and actual salaries for faculty members based on productivity data.
2007 LAS-Social Sciences: Significant Salary Differences by White Male & Other Faculty

### 2007 LAS-Social Sciences: Differences between Predicted and Actual Salary for White Males and Other Faculty

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Males</td>
<td>36</td>
<td>$0</td>
<td>$2,940</td>
<td>$17,640</td>
<td>-$5,968</td>
</tr>
<tr>
<td>Other Faculty</td>
<td>36</td>
<td>-$9,764</td>
<td>$5,062</td>
<td>$30,374</td>
<td>$513</td>
</tr>
<tr>
<td>combined</td>
<td>72</td>
<td>-$4,882</td>
<td>$2,964</td>
<td>$25,146</td>
<td>-$1,027</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$9,764</td>
<td>$5,854</td>
<td>-$21,490</td>
<td>$1,962</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

t = -1.6679

degrees of freedom = 56.1978

Pr(T < t) = 0.0504

Note on the 2007 LAS-Social Science White Faculty and Other Faculty Graph: For this year, multiple ranks were significant in predicting LAS-Social Sciences salaries. This resulted in a more scattered distribution of predicted and actual salaries for faculty members based on productivity data.
### 2007 Veterinary Medicine: Significant Salary Differences by Gender

#### 2007 Veterinary Medicine: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>23</td>
<td>-$6,477</td>
<td>$2,109</td>
<td>$10,113</td>
<td>-$10,850 -$2,104</td>
</tr>
<tr>
<td>Male</td>
<td>70</td>
<td>$739</td>
<td>$1,904</td>
<td>$15,929</td>
<td>-$3,059 $4,537</td>
</tr>
<tr>
<td>combined</td>
<td>93</td>
<td>-$1,045</td>
<td>$1,554</td>
<td>$14,985</td>
<td>-$4,131 $2,041</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$7,216</td>
<td>$2,841</td>
<td>$14,985</td>
<td>-$12,899 -$1,533</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.5400 \quad \text{degrees of freedom} = 59.8159 \quad \Pr(T < t) = 0.0069 \]

Note on the 2007 Veterinary Medicine Gender Graph: For this year, rank was not a significant predictor of faculty salaries in Veterinary Medicine resulting in fewer obvious clusters of faculty. Instead, years since degree and productivity data determined the distribution of salaries.
### 2006 LAS-Social Sciences: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>29</td>
<td>-$16,110</td>
<td>$3,536</td>
<td>$19,043</td>
<td>-$23,354 -$8,867</td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
<td>$1,266</td>
<td>$2,796</td>
<td>$18,960</td>
<td>-$4,365   $6,896</td>
</tr>
<tr>
<td>combined</td>
<td>75</td>
<td>-$5,453</td>
<td>$2,390</td>
<td>$20,698</td>
<td>-$10,215  -$691</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$17,376</td>
<td>$4,508</td>
<td>$26,394</td>
<td>-$26,394  -$8,358</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -3.8547 \]  
\[ \text{degrees of freedom} = 59.4804 \]  
\[ \Pr(T < t) = 0.0001 \]

**Note on the 2006 LAS-Social Sciences Gender Graph:** For this year, because full professor was the only rank that was a significant predictor of salary, LAS-Social Sciences salaries cluster into two groups, full professors and assistant/associate professors. The model predicts that faculty within these two rank clusters receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank.
2006 LAS-Social Sciences: Differences between Predicted and Actual Salary for White Males and Other Faculty

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Males</td>
<td>38</td>
<td>$0</td>
<td>$3,081</td>
<td>$18,992</td>
<td>-$6,243 to $6,243</td>
</tr>
<tr>
<td>Other Faculty</td>
<td>37</td>
<td>-$11,054</td>
<td>$3,473</td>
<td>$21,124</td>
<td>-$18,097 to -$4,011</td>
</tr>
<tr>
<td>combined</td>
<td>75</td>
<td>-$5,453</td>
<td>$2,390</td>
<td>$20,698</td>
<td>-$10,215 to -$691</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$11,054</td>
<td>$4,642</td>
<td></td>
<td>-$20,309 to -$1,799</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.3810 \quad \text{degrees of freedom} = 71.7341 \quad Pr(T < t) = 0.0100 \]

Note on the 2006 LAS-Social Sciences White Males and Other Faculty Graph: For this year, because full professor was the only rank that was a significant predictor of salary, LAS-Social Sciences salaries cluster into two groups, full professors and assistant/associate professors. The model predicts that faculty within these two rank clusters receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank.
**2006 Veterinary Medicine: Differences between Predicted and Actual Salary by Gender**

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>25</td>
<td>-$10,032</td>
<td>$3,232</td>
<td>$16,161</td>
<td>-$16,703 to -$3,361</td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>$991</td>
<td>$2,104</td>
<td>$16,295</td>
<td>-$3,218 to $5,201</td>
</tr>
<tr>
<td>combined</td>
<td>85</td>
<td>-$2,251</td>
<td>$1,836</td>
<td>$16,931</td>
<td>-$5,903 to $1,401</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$11,024</td>
<td>$3,856</td>
<td>$18,790</td>
<td>-$3,258 to $1,401</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.8585 \]  
\[ \text{degrees of freedom} = 45.3294 \]  
\[ \Pr(T < t) = 0.0032 \]

Note on the 2006 Veterinary Medicine Gender Graph: For this year, associate professor was the only rank that was a significant and negative predictor of Veterinary Medicine salaries. This resulted in a clustering of associate professors and a distribution of full and assistant professors influenced by productivity data.
## 2005 Design: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>36</td>
<td>-$2,890</td>
<td>$987</td>
<td>$5,919</td>
<td>-$4,893 -$888</td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
<td>-$184</td>
<td>$1,178</td>
<td>$7,813</td>
<td>-$2,560 $2,191</td>
</tr>
<tr>
<td>combined</td>
<td>80</td>
<td>-$1,402</td>
<td>$795</td>
<td>$7,112</td>
<td>-$2,985 $181</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$2,706</td>
<td>$1,536</td>
<td>-$5,765</td>
<td>$353</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -1.7612 \quad \text{degrees of freedom} = 77.584 \quad \Pr(T < t) = 0.0411 \]

Note on the 2005 Design Gender Graph: For this year, no predictors for Design College salary were significant beyond rank. This resulted in the model predicting that faculty of each rank received the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the variability in actual salaries by rank.

Source: Faculty Salary Study 2008, ISU ADVANCE Program

---

### 2005 College of Design

(Linear Fit of Male and Female Faculty Salaries)

T = Tenure-Eligible, A = Associate, P = Professor

Source: Faculty Salary Study 2008, ISU ADVANCE Program
### 2005 Design: Differences between Predicted and Actual Salary for White Males and Other Faculty

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Males</td>
<td>38</td>
<td>$0</td>
<td>$1,274</td>
<td>$7,855</td>
<td>-$2,582 $2,582</td>
</tr>
<tr>
<td>Other Faculty</td>
<td>42</td>
<td>-$2,671</td>
<td>$955</td>
<td>$6,190</td>
<td>-$4,600 -$742</td>
</tr>
<tr>
<td>combined</td>
<td>80</td>
<td>-$1,402</td>
<td>$795</td>
<td>$7,112</td>
<td>-$2,985 $181</td>
</tr>
<tr>
<td>difference</td>
<td>80</td>
<td>-$2,671</td>
<td>$1,592</td>
<td>-$5,847</td>
<td>$505</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

$t = -1.6771$  
degrees of freedom = 70.2426  
Pr($T < t$) = 0.0490

---

**Note on the 2008 Design Gender Graph**: For this year, no predictors for Design College salary were significant beyond rank. This resulted in the model predicting that faculty of each rank received the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the variability in actual salaries by rank.

---

**2005 College of Design**  
(Linear Fit of White Male and Other Faculty Salaries)

---

*T = Tenure-Eligible, A = Associate, P = Professor  
Source: Faculty Salary Study 2008, ISU ADVANCE Program*
### 2005 LAS-Humanities: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>62</td>
<td>-$2,029</td>
<td>$997</td>
<td>$7,848</td>
<td>-$4,022 to -$35</td>
</tr>
<tr>
<td>Male</td>
<td>88</td>
<td>$2,274</td>
<td>$2,396</td>
<td>$22,479</td>
<td>-$2,489 to $7,037</td>
</tr>
<tr>
<td>combined</td>
<td>150</td>
<td>$496</td>
<td>$1,471</td>
<td>$18,022</td>
<td>-$2,412 to $3,404</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$4,303</td>
<td>$2,595</td>
<td>$9,444</td>
<td>$838</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -1.6579 \quad \text{degrees of freedom} = 114.806 \quad \text{Pr}(T < t) = 0.0500 \]

**Note on the 2005 LAS-Humanities Gender Graph:** The closeness of the fitted regression lines in this graph represents the barely significant difference between male and female faculty salaries.
2005 LAS-Social Sciences: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>27</td>
<td>-$13,107</td>
<td>$3,239</td>
<td>$16,828</td>
<td>-$19,764 -$6,450</td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
<td>$1,051</td>
<td>$3,083</td>
<td>$21,583</td>
<td>-$5,148 $7,251</td>
</tr>
<tr>
<td>combined</td>
<td>76</td>
<td>-$3,979</td>
<td>$2,414</td>
<td>$21,043</td>
<td>-$8,787 $830</td>
</tr>
<tr>
<td>difference</td>
<td>76</td>
<td>-$14,158</td>
<td>$4,472</td>
<td>$23,088</td>
<td>-$5,229 $5,229</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

t = -3.1664    degrees of freedom = 65.3924    Pr(T < t) = 0.0012

Note on the 2005 LAS-Social Sciences Gender Graph: For this year, because full professor was the only rank that was a significant predictor of salary, LAS-Social Sciences salaries tend to cluster somewhat into two groups, full professors and assistant/associate professors. The model predicts that faculty within these two rank clusters receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank. Additionally, the relative “looseness” of the clusters resulted from the influence of productivity data on the distribution of predicted salaries.

2005 College of Liberal Arts & Sciences-SBS (Linear Fit of Male and Female Faculty Salaries)

T = Tenure-Eligible, A = Associate, P= Professor
Source: Faculty Salary Study 2008, ISU ADVANCE Program
### 2005 LAS-Social Sciences: Differences between Predicted and Actual Salary for White Males and Other Faculty

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Males</td>
<td>40</td>
<td>$0</td>
<td>$3,184</td>
<td>$20,138</td>
<td>-$6,440 to $6,440</td>
</tr>
<tr>
<td>Other Faculty</td>
<td>36</td>
<td>-$8,399</td>
<td>$3,570</td>
<td>$21,420</td>
<td>-$15,647 to -$1,151</td>
</tr>
<tr>
<td>combined</td>
<td>76</td>
<td>-$3,979</td>
<td>$2,414</td>
<td>$21,043</td>
<td>-$8,787 to $830</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$8,399</td>
<td>$4,784</td>
<td>$19,335</td>
<td>-$17,935 to $1,137</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -1.7558 \], \quad \text{degrees of freedom} = 71.9631, \quad \text{Pr}(T < t) = 0.0417

**Note on the 2005 LAS-Social Sciences White Male and Other Faculty Graph:** For this year, because full professor was the only rank that was a significant predictor of salary, LAS-Social Sciences salaries tend to cluster somewhat into two groups, full professors and assistant/associate professors. The model predicts that faculty within these two rank clusters receive the same salary (as seen by narrow vertical band of faculty at each level of rank). However, the vertical spread of the plot points depicts the considerable variability in actual salaries by rank. Additionally, the relative “looseness” of the clusters resulted from the influence of productivity data on the distribution of predicted salaries.
### 2005 Veterinary Medicine: Differences between Predicted and Actual Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>23</td>
<td>-$8,790</td>
<td>$3,138</td>
<td>$15,049</td>
<td>-$15,298 -$2,283</td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td>$356</td>
<td>$2,106</td>
<td>$16,585</td>
<td>-$3,856 $4,567</td>
</tr>
<tr>
<td>combined</td>
<td>85</td>
<td>-$2,119</td>
<td>$1,801</td>
<td>$16,606</td>
<td>-$5,701 $1,463</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td>-$9,146</td>
<td>$3,779</td>
<td>$16,767</td>
<td>-$1,525 $1,525</td>
</tr>
</tbody>
</table>

Two-sample t test with unequal variances

\[ t = -2.4200 \quad \text{degrees of freedom} = 43.1327 \quad \text{Pr}(T < t) = 0.0099 \]

Note on the 2005 Veterinary Medicine Gender Graph: For this year, associate professor was the only rank that was a significant and negative predictor of Veterinary Medicine salaries. This resulted in a clustering of associate professors and a distribution of full and assistant professors influenced by productivity data.
### 2007 Effects of Productivity Measures on Logged Faculty Salary

<table>
<thead>
<tr>
<th>Productivity Measure</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>t</th>
<th>P &gt; t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal articles</td>
<td>0.03</td>
<td>0.00</td>
<td>7.30</td>
<td>0.000</td>
</tr>
<tr>
<td>Professional service</td>
<td>0.01</td>
<td>0.00</td>
<td>4.95</td>
<td>0.000</td>
</tr>
<tr>
<td>Book reviews</td>
<td>-0.08</td>
<td>0.03</td>
<td>-2.91</td>
<td>0.004</td>
</tr>
<tr>
<td>Patents</td>
<td>0.24</td>
<td>0.10</td>
<td>2.47</td>
<td>0.014</td>
</tr>
<tr>
<td>Software programs</td>
<td>0.13</td>
<td>0.06</td>
<td>2.37</td>
<td>0.018</td>
</tr>
<tr>
<td>Presentations</td>
<td>-0.01</td>
<td>0.00</td>
<td>-2.14</td>
<td>0.033</td>
</tr>
<tr>
<td>Awards</td>
<td>-0.08</td>
<td>0.04</td>
<td>-2.06</td>
<td>0.039</td>
</tr>
<tr>
<td>Book chapters</td>
<td>0.04</td>
<td>0.02</td>
<td>2.04</td>
<td>0.041</td>
</tr>
<tr>
<td>Performances</td>
<td>-0.07</td>
<td>0.04</td>
<td>-1.93</td>
<td>0.054</td>
</tr>
<tr>
<td>University service</td>
<td>0.00</td>
<td>0.00</td>
<td>0.90</td>
<td>0.369</td>
</tr>
<tr>
<td>Books</td>
<td>-0.05</td>
<td>0.06</td>
<td>-0.85</td>
<td>0.396</td>
</tr>
<tr>
<td>Non-reviewed journals</td>
<td>0.01</td>
<td>0.01</td>
<td>0.76</td>
<td>0.445</td>
</tr>
<tr>
<td>intercept</td>
<td>11.19</td>
<td>0.02</td>
<td>661.88</td>
<td>0.000</td>
</tr>
</tbody>
</table>

N = 998  Prob > F = 0.00  Adj R-squared = 0.165
These three graphs show trends in book or monograph chapter production over time by rank and gender. The fitted values line shows the quadratic prediction plots and the shaded region shows the confidence intervals for each plot. Wider confidence intervals signify less statistical confidence in the value. This is likely due to relatively small numbers of available faculty at any particular year in rank.

The Assistant Professor Journal Article Production table shows that both male and female assistant professors with less than nine years in rank show an initial drop, then increase in published journal articles over time. Assistant professors with nine or more years in rank show a steady drop in published journal articles.

The Full Professor Journal Article Production table shows that both male and female faculty have an initial drop in published numbers of peer-review journal articles around 10-15 years in rank. However, the number of articles increases with time in rank.
These three graphs show trends in book or monograph chapter production over time by rank and gender. The fitted values line shows the quadratic prediction plots and the shaded region shows the confidence intervals for each plot. Wider confidence intervals signify less statistical confidence in the value. This is likely due to relatively small numbers of available faculty at any particular year in rank.

The Associate Book Chapter Production table shows that male book chapter production declines with years in rank, while female faculty book chapter production appears to increase over time.

The Full Professor Book Chapter Production table indicates that book chapter production for full professors is relatively stable over time regardless of gender. While the female full professor fitted value line appears to have a downward trend, the confidence interval also widens considerably for higher years in rank.
These three graphs show trends in patent production over time by rank and gender. The fitted values line shows the quadratic prediction plots and the shaded region shows the confidence intervals for each plot. Wider confidence intervals signify less statistical confidence in the value. This is likely due to relatively small numbers of available faculty at any particular year in rank.
These three graphs show trends in university service production over time by rank and gender. The fitted values line shows the quadratic prediction plots and the shaded region shows the confidence intervals for each plot. Wider confidence intervals signify less statistical confidence in the value. This is likely due to relatively small numbers of available faculty at any particular year in rank.

The Full Professor University Service table indicates that university service is relatively stable over time for male full professors, while female full professors show a considerable increase over time in the number of university committees on which they serve.
These three graphs show trends in professional service production over time by rank and gender. The fitted values line shows the quadratic prediction plots and the shaded region shows the confidence intervals for each plot. Wider confidence intervals signify less statistical confidence in the value. This is likely due to relatively small numbers of available faculty at any particular year in rank.

The Associate Professor Professional Service table suggests that professional service drops considerably for male associate professors in the first eight years in rank, but stabilizes or even increases over time. Female associate professors in the first eight years show less of an initial drop in the number of professional service committees, but over time their levels of professional service are similar to male faculty.
<table>
<thead>
<tr>
<th>Average productivity measure per year (2005-2007 average)</th>
<th>Associate Professors (2007)</th>
<th>&lt; 9 years in rank</th>
<th>9+ years in rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Journal articles</td>
<td>1.76</td>
<td>2.45</td>
<td>0.46</td>
</tr>
<tr>
<td>Presentations</td>
<td>2.88</td>
<td>3.69</td>
<td>1.40</td>
</tr>
<tr>
<td>Books</td>
<td>0.05</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>Book chapters</td>
<td>0.32</td>
<td>0.30</td>
<td>0.14</td>
</tr>
<tr>
<td>Book reviews</td>
<td>0.10</td>
<td>0.15</td>
<td>0.18</td>
</tr>
<tr>
<td>Patents</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Software</td>
<td>0.04</td>
<td>0.05</td>
<td>0.03</td>
</tr>
<tr>
<td>Non-reviewed journal articles</td>
<td>0.45</td>
<td>0.58</td>
<td>0.20</td>
</tr>
<tr>
<td>University service</td>
<td>6.97</td>
<td>6.44</td>
<td>5.69</td>
</tr>
<tr>
<td>Professional service</td>
<td>6.50</td>
<td>7.39</td>
<td>3.12</td>
</tr>
</tbody>
</table>

**Shaded region** = higher average productivity by time in rank
### Appendix E: Time in Rank

#### Table: 2007 Assistant & Associate Faculty

<table>
<thead>
<tr>
<th>College category</th>
<th>Number of faculty &lt; 9 years in rank</th>
<th>Number of faculty 9+ years in rank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag. &amp; Life Sciences</td>
<td>243</td>
<td>25</td>
<td>268</td>
</tr>
<tr>
<td></td>
<td>(233.5)</td>
<td>(34.5)</td>
<td>(268)</td>
</tr>
<tr>
<td>Business</td>
<td>50</td>
<td>12</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>(54)</td>
<td>(8)</td>
<td>(62)</td>
</tr>
<tr>
<td>Design</td>
<td>65</td>
<td>21</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>(74.9)</td>
<td>(11.1)</td>
<td>(86)</td>
</tr>
<tr>
<td>Engineering</td>
<td>153</td>
<td>24</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td>(154.2)</td>
<td>(22.8)</td>
<td>(177)</td>
</tr>
<tr>
<td>Human Sciences</td>
<td>101</td>
<td>16</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>(101.9)</td>
<td>(15.1)</td>
<td>(117)</td>
</tr>
<tr>
<td>LAS-Humanities</td>
<td>123</td>
<td>19</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>(123.7)</td>
<td>(18.3)</td>
<td>(142)</td>
</tr>
<tr>
<td>LAS-SBS</td>
<td>70</td>
<td>8</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>(67.9)</td>
<td>(10.1)</td>
<td>(78)</td>
</tr>
<tr>
<td>LAS-STM</td>
<td>203</td>
<td>23</td>
<td>226</td>
</tr>
<tr>
<td></td>
<td>(196.9)</td>
<td>(29.1)</td>
<td>(226)</td>
</tr>
<tr>
<td>Vet Medicine</td>
<td>87</td>
<td>14</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>(88)</td>
<td>(13)</td>
<td>(101)</td>
</tr>
<tr>
<td>Total</td>
<td>1,095</td>
<td>162</td>
<td>1,257</td>
</tr>
<tr>
<td></td>
<td>(1,095)</td>
<td>(162)</td>
<td>(1,257)</td>
</tr>
</tbody>
</table>

Pearson chi²(8) = 17.7310  Pr = 0.023

Numbers in parentheses = expected count
Appendix F: Veterinary Medicine Productivity Tables

### 2007 Vet. Med. Productivity: Book Chapters by Gender

<table>
<thead>
<tr>
<th>Book Chapters, 3-year average</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>10</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>(10.3)</td>
<td>(29.7)</td>
<td>(40)</td>
</tr>
<tr>
<td>0.33</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
<td>(9.7)</td>
<td>(13)</td>
</tr>
<tr>
<td>0.67</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>(2.8)</td>
<td>(8.2)</td>
<td>(11)</td>
</tr>
<tr>
<td>1.00</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(1.3)</td>
<td>(3.7)</td>
<td>(5)</td>
</tr>
<tr>
<td>1.67</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(0.3)</td>
<td>(0.7)</td>
<td>(1)</td>
</tr>
<tr>
<td>2.00</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(0.8)</td>
<td>(2.2)</td>
<td>(3)</td>
</tr>
<tr>
<td>2.33</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(0.3)</td>
<td>(0.7)</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19</td>
<td>55</td>
<td>74</td>
</tr>
</tbody>
</table>

Pearson chi2(6) = 8.9984  Pr = 0.174

Numbers in parentheses = expected count


<table>
<thead>
<tr>
<th>Book Reviews, 3-year average</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>20</td>
<td>61</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>(20)</td>
<td>(61)</td>
<td>(81)</td>
</tr>
<tr>
<td>0.33</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>0.67</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>1.00</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(0.2)</td>
<td>(0.8)</td>
<td>(1)</td>
</tr>
<tr>
<td>1.67</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(0.2)</td>
<td>(0.8)</td>
<td>(1)</td>
</tr>
<tr>
<td>2.67</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(0.2)</td>
<td>(0.8)</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23</td>
<td>70</td>
<td>93</td>
</tr>
</tbody>
</table>

Pearson chi2(4) = 3.5819  Pr = 0.466

Numbers in parentheses = expected count
### 2007 LAS-SBS: Actual vs. Expected Faculty by Gender

<table>
<thead>
<tr>
<th>Department name</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(2.2)</td>
<td>(3.8)</td>
<td>(6)</td>
</tr>
<tr>
<td>Economics-LAS</td>
<td>2</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>(5.9)</td>
<td>(10.1)</td>
<td>(16)</td>
</tr>
<tr>
<td>Political Science</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>(4.1)</td>
<td>(6.9)</td>
<td>(11)</td>
</tr>
<tr>
<td>Psychology</td>
<td>8</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>(8.1)</td>
<td>(13.9)</td>
<td>(22)</td>
</tr>
<tr>
<td>Sociology-LAS</td>
<td>10</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>(6.7)</td>
<td>(11.3)</td>
<td>(18)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>46</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>(27)</td>
<td>(46)</td>
<td>(73)</td>
</tr>
</tbody>
</table>

Pearson chi2(4) = 7.2207  Pr = 0.125

Numbers in parentheses = expected count
Appendix H: Faculty Salary Frequency Distributions

Average College Salary by Gender

<table>
<thead>
<tr>
<th>College category</th>
<th>2008</th>
<th>2007</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Agriculture &amp; Life Sci.</td>
<td>$95,520</td>
<td>$85,444</td>
<td>$90,467</td>
<td>$81,313</td>
</tr>
<tr>
<td></td>
<td>(n = 193)</td>
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<tr>
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<tr>
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<td>Design</td>
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<td>$64,121</td>
<td>$70,417</td>
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<tr>
<td></td>
<td>(n = 39)</td>
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<tr>
<td>Engineering</td>
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<tr>
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<tr>
<td>Human Sciences</td>
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<td>$73,601</td>
<td>$77,432</td>
<td>$70,423</td>
</tr>
<tr>
<td></td>
<td>(n = 35)</td>
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<tr>
<td>LAS-Humanities</td>
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<tr>
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<tr>
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<td>$73,903</td>
</tr>
<tr>
<td></td>
<td>(n = 42)</td>
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<tr>
<td>LAS-STM</td>
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<tr>
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<tr>
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Full-time equivalent nine-month adjusted salary
Tenured and tenure-eligible non-administrative faculty
Average College Salary by Race/Ethnicity

<table>
<thead>
<tr>
<th>College category</th>
<th>2008</th>
<th>2007</th>
<th>2006</th>
<th>2005</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Faculty of Color</td>
<td>White Faculty</td>
<td>Faculty of Color</td>
<td>White Faculty</td>
</tr>
<tr>
<td>Agriculture &amp; Life Sci.</td>
<td>$86,039</td>
<td>$94,750</td>
<td>$82,648</td>
<td>$89,674</td>
</tr>
<tr>
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<td>(n = 33)</td>
<td>(n = 217)</td>
<td>(n = 36)</td>
</tr>
<tr>
<td>Business</td>
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<td>$133,407</td>
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<tr>
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</tr>
<tr>
<td>Design</td>
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<td>$70,321</td>
<td>$63,175</td>
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</tr>
<tr>
<td>(n = 9)</td>
<td>(n = 64)</td>
<td>(n = 11)</td>
<td>(n = 68)</td>
<td>(n = 11)</td>
</tr>
<tr>
<td>Engineering</td>
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<td>$113,001</td>
<td>$97,691</td>
<td>$105,859</td>
</tr>
<tr>
<td>(n = 60)</td>
<td>(n = 97)</td>
<td>(n = 61)</td>
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<td>(n = 58)</td>
</tr>
<tr>
<td>Human Sciences</td>
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<td>$76,259</td>
<td>$72,165</td>
<td>$72,852</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
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<td>$84,233</td>
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</tr>
<tr>
<td>(n = 13)</td>
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<tr>
<td>LAS-STM</td>
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<td>$98,950</td>
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<td>$92,208</td>
</tr>
<tr>
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<td>(n = 65)</td>
<td>(n = 151)</td>
<td>(n = 63)</td>
</tr>
<tr>
<td>Vet Med</td>
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<td>$97,955</td>
<td>$96,775</td>
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<tr>
<td>(n = 10)</td>
<td>(n = 73)</td>
<td>(n = 12)</td>
<td>(n = 81)</td>
<td>(n = 9)</td>
</tr>
</tbody>
</table>

Full-time equivalent nine-month adjusted salary
Tenured and tenure-eligible non-administrative faculty
### 2005 Faculty Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>359</td>
<td>$66,802</td>
<td>$1,028</td>
<td>$19,487</td>
<td>$64,780 - $68,825</td>
</tr>
<tr>
<td>Male</td>
<td>903</td>
<td>$81,992</td>
<td>$827</td>
<td>$24,857</td>
<td>$80,369 - $83,616</td>
</tr>
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</table>

### 2005 Faculty Salary by Race/Ethnicity

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Color</td>
<td>238</td>
<td>$79,154</td>
<td>$1,529</td>
<td>$23,582</td>
<td>$76,143 - $82,165</td>
</tr>
<tr>
<td>White Faculty</td>
<td>1025</td>
<td>$77,303</td>
<td>$769</td>
<td>$24,619</td>
<td>$75,794 - $78,812</td>
</tr>
</tbody>
</table>

### 2005 Faculty Salary by Rank

<table>
<thead>
<tr>
<th>Rank</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>487</td>
<td>$95,643</td>
<td>$24,372</td>
<td>$50,828</td>
<td>$179,975</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>422</td>
<td>$70,845</td>
<td>$16,692</td>
<td>$31,937</td>
<td>$122,788</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>354</td>
<td>$61,017</td>
<td>$14,282</td>
<td>$32,761</td>
<td>$115,000</td>
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</tbody>
</table>
### 2006 Faculty Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
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<td>$69,701</td>
<td>$1,084</td>
<td>$20,530</td>
<td>$67,570 - $71,832</td>
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<tr>
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<td>$85,600</td>
<td>$880</td>
<td>$25,837</td>
<td>$83,873 - $87,328</td>
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</table>

### 2006 Faculty Salary by Race/Ethnicity

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Color</td>
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<td>$83,134</td>
<td>$1,630</td>
<td>$25,147</td>
<td>$79,923 - $86,345</td>
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<tr>
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<td>$813</td>
<td>$25,497</td>
<td>$78,795 - $81,987</td>
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</table>

### 2006 Faculty Salary by Rank

<table>
<thead>
<tr>
<th>Rank</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
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<td>$25,202</td>
<td>$52,590</td>
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<tr>
<td>Associate Professors</td>
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<tr>
<td>Assistant Professors</td>
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<td>$64,470</td>
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<td>$33,732</td>
<td>$131,480</td>
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</table>
### 2007 Faculty Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>353</td>
<td>$73,970</td>
<td>$1,274</td>
<td>$23,943</td>
<td>$71,464 - $76,477</td>
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<tr>
<td>Male</td>
<td>849</td>
<td>$90,578</td>
<td>$957</td>
<td>$27,893</td>
<td>$88,699 - $92,457</td>
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</table>

### 2007 Faculty Salary by Race/Ethnicity

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Color</td>
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<td>$87,750</td>
<td>$1,737</td>
<td>$27,243</td>
<td>$84,329 - $91,171</td>
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<tr>
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<td>$27,971</td>
<td>$83,398 - $86,948</td>
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### 2007 Faculty Salary by Rank

<table>
<thead>
<tr>
<th>Rank</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>490</td>
<td>$104,536</td>
<td>$27,734</td>
<td>$54,626</td>
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<tr>
<td>Associate Professors</td>
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<td>$34,196</td>
<td>$126,339</td>
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</table>
### 2008 Faculty Salary by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
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</thead>
<tbody>
<tr>
<td>Female</td>
<td>318</td>
<td>$78,942</td>
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<td>$25,125</td>
<td>$76,170,$81,714</td>
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<tr>
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<td>804</td>
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<td>$29,367</td>
<td>$93,602,$97,668</td>
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### 2008 Faculty Salary by Race/Ethnicity

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
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</thead>
<tbody>
<tr>
<td>Faculty of Color</td>
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<td>$92,597</td>
<td>$1,766</td>
<td>$26,666</td>
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<td>$90,472</td>
<td>$997</td>
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<td>$88,515,$92,429</td>
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### 2008 Faculty Salary by Rank

<table>
<thead>
<tr>
<th>Rank</th>
<th>Obs</th>
<th>Mean</th>
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<th>Max</th>
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</thead>
<tbody>
<tr>
<td>Professors</td>
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<td>$109,305</td>
<td>$29,362</td>
<td>$60,332</td>
<td>$220,488</td>
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<td>Associate Professors</td>
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<td>243</td>
<td>$71,172</td>
<td>$17,792</td>
<td>$36,985</td>
<td>$136,200</td>
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</table>
Theme and Goals for Year 4, 2009-2010

Theme

ADVANCE-ing faculty: pathways to promotion and leadership

Goals for the Year

• Lead campus discussions of “pathways to promotion,” particularly in the promotion from associate to full professor. Build on prior annual goals in mentoring, faculty searches, and work/life. Use these activities to build leadership potential in STEM disciplines, in the department and at higher levels.
• Build mentoring support for faculty of color in STEM through campus conversations as well as support for individual faculty members in the Scholars Program. Use visiting scholars to bring visibility to under-represented STEM faculty on campus. Strengthen mentoring for all STEM faculty at the college level.
• Build on dissemination of past years by training ADVANCE emissaries both on- and off-campus.
• Build strong collaborative transformation (CT) initiatives in nine focal departments and three colleges. Disseminate round 1 and 2 findings and demonstrate progress-to-date in department action plans.
• Strengthen ADVANCE effectiveness in colleges through equity advisors and associate deans.
• Develop program evaluation plan to assess progress on goals
• Model the change we seek on campus.

Guiding Principles

• Sustainability
• Institutional Transformation
• Recruitment, retention, and advancement of a diverse STEM faculty (with focus on retention)
• Building on- and off-campus communities
• Building comprehensive, reliable, and innovative data sets
• Effective and well-planned communications