

**WOMEN IN SCIENCE AND ENGINEERING
(WiSE) PROGRAM**

**PROGRAM REPORT
ACADEMIC YEAR 2006-2007**



THE UNIVERSITY OF SOUTHERN CALIFORNIA

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Introduction

The 2006-2007 academic year has been one of change and accomplishment for the Women in Science and Engineering (WiSE) Program at the University of Southern California. With its primary objective of increasing the representation of women in science and engineering, WiSE began the 2006-2007 year having met its initial goal of doubling the number of women tenured and tenure-track faculty in science and engineering at USC in the first five years of the program. In addition, 6 new WiSE faculty were hired during the year.

The success of the USC WiSE program was celebrated by a feature article in the *Chronicle of Higher Education*. (Appendix 1) In this article, WiSE was lauded for building a comprehensive program of support for scientists and engineers at all stages of their careers, from undergraduate students to senior faculty.

Buoyed by the article's depiction of the WiSE program as a potential national model for diversity initiatives, 2006-2007 was a year dedicated to heightening the visibility of WiSE at USC and beyond. In addition to its formal suite of funding programs, WiSE launched a number of activities to broaden its impact both on campus and nationally among institutions of higher education. Through targeted communication with stakeholder populations and the demonstrated success of the women faculty and students it supports, WiSE was able to illustrate the efficacy of the program's approach to addressing issues of gender equity in science and engineering.

Through the program's interactions with department chairs, search committees, deans, faculty and administrators, WiSE shared information regarding funding opportunities and associated benefits. At national conferences, strategic partnerships with similar programs at other institutions were initiated with the potential for future collaboration. Locally, in Southern California, participation in workshops and meetings also raised the profile of USC as an institution committed to addressing the under-representation of women in science and engineering. A newly designed WiSE website and promotional literature helped to further disseminate information about WiSE programs and initiatives.

This report outlines the activities accomplished during the 2006-2007 academic year and reflects on the initiatives that form the foundation of the WiSE program.

WiSE Leadership

A critical aspect of the success of WiSE is the direct involvement of men and women faculty, at all career levels and from both the USC College and the Viterbi School of Engineering, in planning, evaluating, and guiding the program's development. Faculty serve on all three of the program oversight committees including the WiSE Advisory Board, the USC College WiSE Committee, the USC Viterbi School WiSE Committee, as well as in the Provost's WiSE Program Office.

Advisory Board

In 2006-2007, the Advisory Board met twice during the Fall semester (10/10/06 and 11/21/06) and once during the Spring semester (4/13/07) to review programs, progress, and investigate new program directions.

The members of the WiSE Advisory Board include:

Hanna Reisler, Chair
Professor, Department of Chemistry
USC College of Letters, Arts and Sciences

Jean Morrison (Ex-officio)
Professor, Department of Earth Sciences
USC College of Letters, Arts and Sciences

David D'Argenio
Professor, Department of Biomedical Engineering
USC Viterbi School of Engineering

Suzanne Edmands
Associate Professor, Department of Biological Sciences (Marine)
USC College of Letters, Arts and Sciences

Leana Golubchik
Associate Professor, Department of Computer Science
USC Viterbi School of Engineering

Susan Montgomery
Professor, Department of Mathematics
USC College of Letters, Arts and Sciences

Mark Redekopp
Senior Lecturer, Ming Hsieh Department of Electrical Engineering
USC Viterbi School of Engineering

Paul Rosenbloom
Professor, Department of Computer Science
Information Sciences Institute, USC Viterbi School of Engineering

Geraldine Peters
Research Professor, Department of Physics & Astronomy
USC College of Letters, Arts and Sciences

Katherine Shing
Associate Professor, Mork Family Department of Chemical Eng. & Materials Science
USC Viterbi School of Engineering

School WiSE Committees

Two additional committees, one in each school, serve as advisors to the program by reviewing the applications, making recommendations for funding, and giving feedback on issues specific to each school. These committees include:

USC College WiSE Committee

Judith Hirsch, Chair
Associate Professor, Department of Biological Sciences (Neuroscience)

Clifford Johnson
Professor, Department of Physics & Astronomy

Anna Krylov
Associate Professor, Department of Chemistry

USC Viterbi School of Engineering WiSE Committee

Urbashi Mitra, Chair
Professor, Ming Hsieh Department of Electrical Engineering

Ramesh Govindan
Professor, Department of Computer Science

Maria Yang
Assistant Professor, Daniel J. Epstein Department of Industrial and Systems Engineering

Ellis Meng
Assistant Professor, Department of Biomedical Engineering

With the guidance of its diverse committees, WiSE programs have grown and evolved in response to changing needs. Continued evaluation of the success and utility of programs have helped to keep them relevant and effective.

Provost's WiSE Program Office

Jean Morrison, Professor of Earth Sciences in the USC College and Vice Provost for Graduate Programs continues to serve as Director of the WiSE Program. Morrison was appointed as the WiSE Program Director in 2002.

Assisting with program development and management and the coordination of committees, Nicole Hawkes assumed the role of WiSE Program Manager on 8/7/06.

New WiSE Faculty

A list of all current WiSE Faculty (06-07) can be found in Appendix 2. The following are new WiSE Faculty hired in 06-07:

Jia Grace Lu (Ph.D. 1997, Harvard University)
Associate Professor of Physics

Elena Pierpaoli (Ph.D. 1998, SISSA-ISAS)
Associate Professor of Physics

Liang Chen (Ph.D. 2006, Yale University)
Assistant Professor of Biological Sciences (Molecular and Computational Biology)

Xuelin Wu (Ph.D. 2000, New York University)
Assistant Professor of Biological Sciences (Molecular and Computational Biology)

Katrina Edwards (Ph.D. 1999, University of Wisconsin)
Associate Professor of Biological Sciences (Marine Environmental Biology)

Karla Heidelberg (Ph.D. 1988, University of Maryland, College Park)
Assistant Professor of Biological Sciences (Marine Environmental Biology)

WiSE Program Awards in 2006-2007

Financial awards by program:

Program	# Awards
Faculty Recruitment / Faculty Retention	9
Major Support for Current Faculty	2
Lloyd Armstrong, Jr. Chair	1
Supplemental Faculty Support	14
Postdoctoral Support	5
Graduate Top-Off	5
Merit Fellowship for Current Ph.D.	4
Travel Grants	46
Undergraduate Research Grants	24
Child Care Subsidies	5
Support for Faculty Pregnancy / Childbirth / Adoption	0
Support for Ph.D. and Postdoc Pregnancy / Childbirth / Adoption	1

New Program Development

On October 18 2006, WiSE formally launched two new programs for faculty, graduate students and postdoctoral scholars to support and accommodate pregnancy, childbirth and adoption. Detailed descriptions of the programs and procedures for implementation were distributed to Deans, Department Chairs and Faculty in the USC College and the Viterbi School of Engineering and can be found on the WiSE website. Brief summaries of the programs follow:

Support for Faculty Pregnancy, Childbirth and Adoption

Faculty in S&E who give birth or adopt a child can face unique challenges. The existence of the WiSE Program and the networking and support that are now available to WiSE faculty at USC, present a special opportunity to address the situation and work to overcome many of the obstacles that may potentially adversely affect the careers of WiSE faculty with families. WiSE will provide guidance to help the faculty member navigate negotiations with his/her chair or dean, and may when necessary contribute to the cost of hiring a lecturer to teach the course(s) of the WiSE faculty member for the period of the agreed modified duties, and/or give priority funding through the WiSE Major Support for Faculty Program during the first two years after the birth or adoption of a child to offset grants/contracts negatively affected by childbirth or adoption.

Fellowship to Accommodate Pregnancy, Childbirth and Adoption for Ph.D. Students and Postdoctoral Scholars

One of the most important issues affecting the increase in representation of women in S&E is the balance of career and family obligations. For young scientists and engineers, this balance primarily involves childbirth, adoption, nursing and infant care. Specific to S&E is the need to avoid potentially hazardous situations during pregnancy and nursing such as exposure to chemicals, electromagnetic radiation, or other possible damaging settings. The WiSE Program developed this fellowship support program to help Ph.D. students or postdoctoral scholars and their advisors solve any conflicts that arise between the constraints of pregnancy, childbirth, adoption, nursing and infant care and the continuing work of the research program.

Doctoral students with 50% time funding may apply for a pregnancy or adoption support fellowship of up to one semester of a 50% time university stipend at the minimum stipend rate to be used during the time of pregnancy and/or in the first year after childbirth or adoption. Postdoctoral scholars may apply to the WiSE Program for a pregnancy or adoption support fellowship in the amount of up to 50% of the 12 month salary for one semester, provided that the mentor pays the other half. The exact amount of financial support will depend upon the postdoctoral scholar's eligibility for disability benefits.

These programs will be applied in the initial form for a period of five years. The programs will then be revised to include modifications resulting from experience gained during the trial period. Despite the early stages of implementation, informal feedback from potential applicants has demonstrated that the intended message of this program to young scientists and engineers has been communicated, and that the academic environment is perceived as family-friendly.

In addition to its formal suite of grantmaking programs, WiSE awarded several discretionary grants to support activities that work toward the goal of increasing the representation of women in science and engineering. These include:

Group	Purpose
Department of Computer Science (Viterbi School of Engineering)	To share expenses for six undergraduate CS women to attend the “Grace Murray Hopper Celebration of Women in Computing” event in San Diego.
WiSE Postdoctoral Association	To seed the formation of a networking and professional development group for women postdoctoral scholars in science and engineering fields.
Graduate Women in Biology	To seed the formation of a networking and professional development group for women graduate students in the field of biology.
Women in Physics	To share expenses for the Second Annual Conference for Undergraduate Women in Physics at USC.
Women in Mathematics	To support the annual activities of the networking and professional development group among graduate and undergraduate women in math.
Graduate Women in Chemistry	To support the activities of the networking and professional development group for women graduate students in the field of chemistry.

WiSE Activities 2006-2007

Lectures

In accordance with the 2006 recommendations of the WiSE Advisory Board for strategies to improve the institutional climate, WiSE hosted two distinguished lecturers to increase awareness and visibility of gender equity issues in science and engineering (Appendices 3 and 4):

1. Mary Ann Mason
Dean of Graduate Programs and Professor in the School of Social Work
University of California, Berkeley
"Do Babies Matter? The Effect of Family Formation on the Careers of Men and Women Scientists"
Wednesday, September 20, 2006
2. Geraldine Richmond
Richard M. and Patricia H. Noyes Professor
Department of Chemistry and Materials Science Institute
University of Oregon
"Battling Biases and Barriers: Necessary Steps our Academic Institutions Must Take to Assure a Strong Science and Engineering Workforce"
Thursday, March 1, 2007

Lectures were well-attended by faculty, students, staff, deans, and department chairs. Both distinguished lecturers met with WiSE Faculty and Richmond held a series of well-attended meetings with graduate students and postdoctoral scholars. The format of these meetings was so

successful that it will continue in schedules of future guests, who will be given ample opportunities to interact with students and faculty in an informal setting.

Additional opportunities for WiSE faculty and students to interact with distinguished guests of the University were provided during the visits of the following:

1. Evelyn Hu
Professor, Department of Electrical and Computer Engineering
Director California NanoSystems Institute
University of California Santa Barbara
April 4, 2007
2. Carol Bartz
Executive Chairman of the Board
Autodesk, Inc.
April 23, 2007
3. Mildred Dresselhaus
Institute Professor and Professor of Physics and Electrical Engineering
Massachusetts Institute of Technology
April 25, 2007

Recruitment

Also in response to the recommendations outlined by the WiSE Advisory Board, a “toolkit” of resources for hiring diversity was developed for department chairs and search committees. The toolkit outlines recommended strategies for broadening the scope of searches for outstanding diversity candidates. It was distributed through WiSE meetings with department chairs and search committee representatives in both the USC College and Viterbi School of Engineering. (Appendix 5)

As part of its plan to assist in the recruitment of official candidates in science and engineering, WiSE leadership offered to meet with women faculty candidates both to transmit information about the WiSE program and resources and to provide opportunities for candidates to ask questions about USC and work-family issues that they might not ordinarily feel comfortable discussing as part of their formal interview process. Departments took full advantage of this offer and Jean Morrison or Hanna Reisler met with 35 faculty candidates over the course of 2006-2007.

The following is a breakdown of candidates who met with WiSE representatives as part of their campus interview by school and department:

USC College

Department	Candidates
Biological Sciences	0
Chemistry	3
Earth Science	5
Kinesiology	0
Mathematics	1
Physics & Astronomy	2
Total:	11

Viterbi School

Department	Candidates
Aerospace & Mech.	4
Astronautics & Space Technology	1
Biomedical	0
Chemical & Materials Science	2
Civil & Environmental	4
Computer Science	4
Electrical	6
Industrial & Systems	3
Total:	24

Off-Campus Visibility

As part of the effort to increase visibility of the WiSE program both on the USC Campus and nationally, WiSE representatives attended conferences, workshops and events to broadly share information about the WiSE program with the larger public. These events included:

Date	Event	Participants
12/4/06	ACE (American Council on Education) Network Southern California Fall Meeting and Workshop at UCLA	Nicole Hawkes leader of a roundtable discussion on the USC WiSE Program and women in science and engineering
1/18/07	Luncheon for women at ISI and ICT in Marina del Rey	Nicole Hawkes, Jean Morrison, Judith Hirsch and Elaine Chew hosted presentation on WiSE and programs.
2/2/07	Marlborough School Women in Science seminar	Jean Morrison and Jill McNitt-Gray panelists and Nicole Hawkes participant.
2/16/07-2/17/07	AAAS (American Association for the Advancement of Science) Annual Meeting, San Francisco CA	Jean Morrison and Nicole Hawkes participants
3/24/07	Sally Ride Science Festival for Girls at Cal Tech in Pasadena	Blithe Casterline and Meghan Klaric (Ph.D. students in Chemistry) presented interactive demonstrations.
6/10/07 - 6/13/07	WEPAN (Women in Engineering Programs and Advocates Network) Annual Meeting, Orlando FL	Nicole Hawkes participant
6/23/07 – 6/27/07	ASEE (American Society for Engineering Education) Annual Meeting, Honolulu HI	Nicole Hawkes presented paper on the achievements of WiSE in the “Women in Engineering” division

Program Promotion

The WiSE Program received national attention through a *Chronicle of Higher Education* article, “At U. of Southern California, a Support Network Helps Women in Science and Engineering” (September 29, 2006 / Volume 53, Issue 6, Page B8). The article included commentary from a number of WiSE faculty: Jean Morrison, Hanna Reisler, Susan Forsburg, Amy Rechenmacher, Samantha Butler, Maria Yang and Suzanne Edmands (Appendix 1).

To coincide with the publication of the *Chronicle* article, a simultaneous launch of an enhanced WiSE website was planned. The website featured a new organizational plan, enhanced graphics, additional resources, and an online application submission feature that streamlines the management of grants. The website is continually updated with information about events, news, and opportunities for the WiSE community. It can be found at: www.usc.edu/wise (also see Appendix 6)

In addition, an online Wiki site for internal use of the WiSE Faculty Networking group was implemented. Through the Wiki, faculty share ideas, information, and resources. Links to articles on the topic of women in science and engineering predominate.

In association with the website enhancements, a professional photographer was hired to capture images of WiSE faculty and students in laboratory and classroom settings. The photographs have found a number of promotional applications from a banner (used at the Sally Ride Festival), to the website, to power point presentations, to a pair of brochures outlining WiSE Programs.

While the WiSE website contains the most thorough information about programs and application guidelines the two new brochures created in 2006-2007 provide a tangible and widely disburseable method to publicize WiSE programs. The first brochure outlines the WiSE Undergraduate Research Fellowship program and profiles the experience of one recipient (Andrea Cheung, Chemical Engineering, Class of 2007). The second outlines the variety of programs that support Ph.D. students and Postdoctoral scholars giving basic information on WiSE fellowships, childcare subsidies, and travel grants. Brochures are also available on the WiSE website as pdf file downloads (Appendices 7 and 8).

A formal “kit” of reference information on WiSE including news articles, brochures, program descriptions, faculty lists was developed to assist in easily distributing information about the breadth of the program. These kits have been disbursed to faculty candidates, distinguished visitors, and perspective visitors.

The additional participation of WiSE representatives at campus and off-campus events and conferences (outlined under “Activities”) have also contributed to enhanced program promotion.

WiSE Faculty Awards and Distinctions

In addition to the aforementioned *Chronicle* article, other articles featuring WiSE faculty have been assembled in a chronological archive to chart their outstanding accomplishments. As outlined in Provost’s recently announced initiative on Faculty Recognition (3/19/07), bringing the achievements of USC faculty to the “attention of wider circles will support the ongoing recruitment by all departments of additional excellent faculty and graduate students.” It is our

hope that highlighting the outstanding work of WiSE faculty at USC will contribute to our recruitment goals.

Accomplishments by WiSE Faculty in 2006-2007 are listed below:

Name	Department	Accomplishment
Yolanda Gil	ISI / Dept. of Computer Science	Appointment to the Advisory Committee of the Computer and Information Sciences and Engineering Directorate of the NSF. (8/2006)
Jean Morrison	Earth Sciences / Office of the Provost	Promotion to Vice Provost of Graduate Studies (10/2006)
Anna Krylov	Chemistry	Awarded 2007 Dirac Medal from the World Association of Theoretical and Computational Chemists (12/2006)
Urbashi Mitra	Electrical Engineering	Elected a Fellow of the Institute of Electrical and Electronics Engineers (1/2007)
Susan Forsburg	Molecular and Computational Biology	Named a 2007 Fellow of the Association for Women in Science and Engineering (AWIS) (2/2007)
Hanna Reisler	Chemistry / WiSE Advisory Board Chair	Named "Remarkable Woman" by USC The Office of Campus Activities and the Women's Student Assembly (3/2007)
Eva Kanso	Aerospace and Mechanical Engineering	Received Faculty Early Career Development (CAREER) award from the NSF (4/2007).
Hanna Reisler	Chemistry / WiSE Advisory Board Chair	Recipient of USC-Mellon Mentoring Award for "Faculty Mentoring Faculty" (4/2007)
Elaine Chew	Industrial & Systems / Electrical Engineering	Promotion to Associate Professor with Tenure (4/2007)
Elaine Chew	Industrial & Systems / Electrical Engineering	Awarded Fellowship at Harvard's Radcliffe Institute for Advanced Study for 2007-08. (4/2007)
Anna Krylov	Chemistry	Recipient of Agnes Fay Morgan Research Award by the Iota Sigma Pi National Honor Society for Women in Chemistry

Appendix

Appendix 1: Article on WiSE in the Chronicle of Higher Education

THE CHRONICLE OF HIGHER EDUCATION

Diversity in Academic Careers

<http://chronicle.com/weekly/v53/i06/06b00801.htm>

From the issue dated September 29, 2006

At U. of Southern California, a Support Network Helps Women in Science and Engineering

By ALVIN P. SANOFF

When Jean Morrison gave birth to her first child 11 years ago, there were no science colleagues at the University of Southern California with whom she felt comfortable discussing the challenges of combining motherhood and a career as a geochemist. She feared that taking time off would be viewed negatively by her male colleagues on the faculty and could imperil her ability to win research grants. So she continued with a full teaching load, maintained her service obligations, and persisted with her research.

It was an exhausting and unsatisfying experience. "I mucked through it myself and made a lot of mistakes," she recalls.

Today female faculty members in USC's science and engineering programs have more support and more options, thanks to a program called Women in Science and Engineering, which Ms. Morrison directs. The six-year-old program, known as WiSE, is the product of a \$20-million gift by an anonymous donor. The endowment generates about \$1-million annually. The money is used primarily to help hire more female professors in the sciences and engineering, but WiSE also devotes substantial resources to helping women at all stages of their academic careers, from undergraduates on up.

WiSE offers research grants of \$3,000 to about 15 to 20 female undergraduates annually. It helps pay the salaries of about six postdoctoral students. It provides child-care subsidies for graduate students and faculty members who use the university's child-care center. And that is just a partial list of its programs.

The program's breadth and substantial resources set it apart, say those familiar with similar programs at other institutions. "It is a great program," says Donna J. Nelson, associate professor of chemistry at the University of Oklahoma, who has studied the role of women faculty members in the sciences and engineering at research universities. "WiSE is doing the right thing by spreading resources among all levels."

Since the program began in 2000, USC has more than doubled the number of women faculty members in the sciences and engineering — from 15 to 35. The sharpest jump in hiring has occurred at its Viterbi School of Engineering, where the number of women

faculty members has climbed from three to 12 out of a total faculty of about 160. All but one of the school's eight departments now has at least one female member. "When we started, six of the departments did not have women," says Hanna Reisler, a chemistry professor who is chairwoman of WISE's advisory board.

While the number of women in the sciences and engineering remains modest, USC is proud of its results, considering the competition for promising young scholars. In 2004, according to the National Opinion Research Center's annual survey of doctorates, women earned 1,598 doctorates in the physical sciences — about one-quarter of those awarded — and slightly more than 1,000 in engineering, or 18 percent of those awarded. That's a vast improvement from 30 years earlier, when women earned only 8 percent of doctorates in the physical sciences and 1 percent of those in engineering.

But many of today's newly minted Ph.D.'s prefer private industry to the academy. "Women tend to self-select out of faculty positions," says Susan L. Forsburg, professor of biological sciences at USC. "If they see that the life of a professor is incompatible with other values, they won't pursue that path." Ms. Forsburg says that in many respects industry is more open to women than higher education.

Part of the problem is that some male faculty members in the sciences and engineering still hold negative stereotypes of women. "I think a lot of men view women as not as aggressive and feel they won't generate overhead funds, won't publish as much," and won't enhance the university's reputation sufficiently, says Amy L. Rechenmacher, assistant professor of civil and environmental engineering at USC. She says that after a search committee she served on interviewed four finalists, including one woman, a male member of the panel said the group needed to be cautious about recommending the woman because she had a family. "I told him that was inappropriate," she says. "All the candidates had families."

"Raising awareness and shattering age-old stereotypes takes an organized effort like the WISE program," she says.

In part because of programs like WISE, attitudes in academe are gradually changing. As a result, talented female scholars in the sciences and engineering are in demand. "There is a market for talent out there, and you have to be prepared to bid for that talent," says James E. Moore II, chair of USC's department of industrial and systems engineering. "USC has two cards to play: its reputation and the additional resources from WISE that it can bundle with university resources."

Thanks to WISE, USC is able to offer employment packages that are more generous than the university could otherwise provide. "We ask candidates what would it take for them to come to USC, and we help the dean of the school involved come up with that," says Ms. Morrison, who also serves as associate vice provost for graduate programs. WISE provides additional money beyond salaries — for lab equipment and travel, for example — "and that is a strong incentive for a dean to encourage departments to hire outstanding women," she says.

Samantha J. Butler, assistant professor of biological sciences, says the university's ability to make a better offer than another institution played a key role in her decision to come to USC. "They paid for hundreds of thousands of dollars worth of equipment," she says.

Maria C. Yang, an assistant professor in industrial and systems engineering, says that when she visited USC to interview, she met with Ms. Morrison and Ms. Reisler. "Here were two people not even in engineering who were interested in telling me about programs for women faculty," she says. "I had never experienced this before."

Ms. Yang became pregnant shortly after arriving at USC. But unlike Ms. Morrison several years earlier, Ms. Yang was able to consult with numerous female colleagues. As a result, instead of trying to do it all, she chose to take a semester off from teaching but continued with her research. "In engineering, having a child if you are untenured can be risky," says Ms. Yang. "I was concerned about how male colleagues would view it. This was new territory for engineering since I was the first untenured woman in the school to ask for maternity leave."

The WISE program is trying to change the procedure for obtaining maternity leave. Currently, faculty members must first gain approval from their department chair. "When it comes to covering teaching responsibilities, even the most sensitive chair is going to be conflicted," says Suzanne Edmands, associate professor of biological sciences. WISE would like faculty members to be able to bypass their chairs and go directly to their deans, who would have a less personal stake in the decision.

When Ms. Edmands adopted a child, she didn't take time off. Instead, after consulting with her female colleagues, she asked for and received a one-year tenure extension.

One of WISE's most important activities is a monthly brown-bag lunch for female science-and-engineering faculty members. That provides an opportunity for women to get to know one another and form support groups with colleagues in other scientific disciplines. "Even if you are the only woman in your department, you don't feel isolated," says Ms. Reisler.

Speaking of her experiences at another institution, Ms. Forsburg says, "When you are the only woman in a room, you can say something, and they don't hear you. But at the lunches, we get to be in a room with people who understand what we are saying and what our experiences are, and who try to improve the situation for everyone."

Ms. Rechenmacher, who was on the faculty at the Johns Hopkins University before coming to USC, says she felt largely on her own at Hopkins. But at USC, the lunches have enabled her to meet a group of people who can answer any questions or help her find someone who can. "Academia is a dog-eat-dog world," she says. "If you are given wrong advice, you can go in the wrong direction, and it can cost you tenure. It is nice to have people whom you can ask, 'What do I do?'"

Despite the WISE program's success, its leaders are not ready to declare victory. Ms. Reisler wants to change the institutional culture so that hiring women becomes an important measure of a department's success.

WISE has met its initial target of doubling the number of female faculty members in the sciences and engineering, and now the program has a new goal. Ms. Morrison would like to see the number of women rise to 60 in the next five years. She also wants to assure that younger faculty members are promoted and tenured, and that USC does not lose women to other institutions.

That is in keeping with WISE's long-term approach. "We never felt we had to go for the quick fix," she says. "If there were a quick fix, everybody would have done it."

<http://chronicle.com>

Section: Diversity in Academic Careers

Volume 53, Issue 6, Page B8

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Appendix 2: Current WiSE Faculty 06-07

Tenured and Tenure-Track Faculty

The USC College of Letters, Arts and Sciences

Life Sciences

Sarah Bottjer	Professor	Biological Sciences (Neuro)
Susan Forsburg	Professor	Biological Sciences (MCB)
Miriam Susskind	Professor	Biological Sciences (MCB)
Suzanne Edmands	Associate Professor	Biological Sciences (Marine)
Katrina Edwards	Associate Professor	Biological Sciences (Marine)
Judith Hirsch	Associate Professor	Biological Sciences (Neuro)
Emily Liman	Associate Professor	Biological Sciences (Neuro)
Michelle Arbeitman	Assistant Professor	Biological Sciences (MCB)
Samantha Butler	Assistant Professor	Biological Sciences (Neuro)
Liang Chen	Assistant Professor	Biological Sciences (MCB)
Karla Heidelberg	Assistant Professor	Biological Sciences (Marine)
Xuelin Wu	Assistant Professor	Biological Sciences (MCB)
Xianghong Zhou	Assistant Professor	Biological Sciences (MCB)
Wiebke Ziebis	Assistant Professor	Biological Sciences (Marine)
Jill McNitt-Gray	Professor	Kinesiology
Lorraine Turcotte	Associate Professor	Kinesiology

Physical Sciences / Mathematics

Hanna Reisler	Professor	Chemistry
Anna Krylov	Associate Professor	Chemistry
Amy Barrios	Assistant Professor	Chemistry
Jean Morrison	Professor	Earth Science
Susan Montgomery	Professor	Mathematics
Jia Grace Lu	Associate Professor	Physics & Astronomy
Elena Pierpaoli	Associate Professor	Physics & Astronomy

The USC Viterbi School of Engineering

Alice Parker	Professor	Electrical Engineering Systems
Urbashi Mitra	Professor	Electrical Engineering Systems
Katherine Shing	Associate Professor	Chemical Engineering & Material Science
Maja Mataric	Professor	Computer Science
Leana Golubchik	Associate Professor	Computer Science
Banu Ozden	Assistant Professor	Computer Science
Karen Liu	Assistant Professor	Computer Science
Elaine Chew	Associate Professor	Industrial and Systems Engineering
Maria Yang	Assistant Professor	Industrial and Systems Engineering

Eva Kanso	Assistant Professor	Aerospace and Mechanical Engineering
Amy Rechenmacher	Assistant Professor	Civil and Environmental Engineering
Ellis Meng	Assistant Professor	Biomedical Engineering

Non Tenure-Track Faculty (WiSE Participants)

The USC College of Letters, Arts and Sciences

Linda Duguay	Research Associate Professor	Biological Sciences (Marine)
Myrna Jacobson	Research Assistant Professor	Biological Sciences (Marine)
Cymra Haskell	Lecturer	Mathematics
Florence Lin	Lecturer	Mathematics
Elena Verona	Lecturer	Mathematics
Geraldine Peters	Research Professor	Space Sciences Center
Neda Katz	Lecturer	Physics
Marcella Raney	Lecturer	Kinesiology
Nayuta Yamashita	Assistant Professor	Anthropology (MCB / Neuro.)

Viterbi School of Engineering

Ann Chervenak	Research Assistant Professor	Computer Science / ISI
Carole Beal	Research Professor	Information Sciences Institute
Claire Bono	Lecturer	Computer Science / ISI
Ewa Deelman	Research Assistant Professor	Computer Science / ISI
Hanh Dam Le-Griffin	Research Assistant Professor	Civil & Environmental Engineering
Jennifer Swift	Research Assistant Professor	Civil & Environmental Engineering
Jihie Kim	Research Assistant Professor	Computer Science / ISI
Kristina Lerman	Research Assistant Professor	Computer Science / ISI
Ladan Gharai	Computer Scientist	ISI
Maria Todorovska	Research Professor	Civil & Environmental Engineering
Mary Hall	Research Associate Professor	Computer Science / ISI
Wee Ling Wong	Research Assistant Professor	Biomedical Engineering
Yolanda Gil	Research Associate Professor	Computer Science / ISI



UNIVERSITY OF SOUTHERN CALIFORNIA

*Women in Science and Engineering (WiSE) Program
Office of the Provost*

The Women in Science and Engineering (WiSE)
Program presents

***Do Babies Matter?
The Effect of Family Formation
on the Careers of
Men and Women Scientists***



Mary Ann Mason

Dean of the Graduate Division and
Professor, Graduate School of Social Welfare
University of California, Berkeley

Wednesday, September 20, 2006

3:00 p.m. – 4:00 p.m.

Hedco Neuroscience Auditorium (HNB 100)

Reception to follow in HNB 107

Please call the WiSE Program Office at
(213) 821-4400 for more information

The USC Women in Science and Engineering Program



presents

**Battling Biases and Barriers:
Necessary Steps our Academic Institutions
Must Take to Assure a Strong Science and
Engineering Workforce**



Dr. Geraldine Richmond

Richard M. and Patricia H. Noyes Professor
Dept. of Chemistry & Materials Science Institute
University of Oregon

Thursday, March 1, 2007

2:00 p.m. – 3:00 p.m.

Ahmanson Center (ACB 238)

Reception to follow

Contact WiSE at (213) 821-4400 for more information
Or visit www.usc.edu/wise/events/geri_richmond.html

Appendix 5: USC Search Committee “Toolkit”

Increasing Faculty Diversity: Tips to Chairs and Search Committees

Developed by the USC WiSE Program

The search for a new faculty member is both routine and unique. The procedures are the same no matter what position or department: advertise, review applications, interview, and hire. However, each position has specific qualities, and departments will define their own selection criteria and candidate qualifications.

This document identifies the major components of the search process from the perspective of increasing faculty diversity, and offers suggestions on how departments can modify the process to reflect their special hiring needs, while at the same time strive to increase diversity. These search tips for department chairs and search committees are adapted from those developed at other universities by NSF ADVANCE programs on institutional transformation and conform to search procedures at USC.

As a first step to increase diversity, think beyond the immediate search steps as you develop your procedures. Just as your department is trying to find the best candidate, applicants are judging whether they want to come to USC and build their careers here.

Before the Search

- Create a search committee that is enthusiastic and genuinely committed to faculty diversity. Include individuals with different expertise, and at least one senior faculty who is from an underrepresented group.
- Include diversity goals in the departmental strategic plan, as well as in its the mission statement.
- Distribute a departmental statement outlining meaningful steps to be taken to achieve greater diversity among the faculty, drawing on your department’s appraisal of diversity needs.
- Critically analyze the job description and advertisement, making sure that they are geared towards inclusiveness.
- Clearly articulate campus rationale for support of faculty racial and ethnic diversity by making explicit the connection between faculty diversity, excellence and educational goals.

The Search Committee

- Make sure the committee is diverse, even if this broadens the scope of the committee beyond the professional goals set by the search.
- Identify key members who will serve as advocates for women and minorities.
- Ask dean, chair, and WiSE committee members to meet with the search committee at the beginning of the process to reiterate the importance of increased diversity and provide guidance on increasing the diversity of the applicant pool and minimizing subconscious biases in selecting candidates.

- Identify ways in which a diverse pool of candidates will be attracted.

Planning the Search

- Meet with the appropriate faculty to establish specific hiring goals. Determine how much you are willing to broaden the scope of the search for a candidate from an underrepresented group. Develop a clear position description that includes the possibility of a broadened scope.
- Develop a timeline for recruiting and interviewing that takes into account the reality that excellent diversity candidates are sought after by many schools and their interview calendar fills up early.
- Determine and document how the committee plans to actively recruit women and minorities. Examples include:
 - (i) Develop a process for committee members or departmental faculty to make personal contact with potential candidates at professional meetings and conferences;
 - (ii) Utilize personal and professional networks, contacts, and recommendations to seek leads to potential minority candidates. Do not call only faculty at top-ranked universities. Some excellent diversity candidates get their education at other universities, because they are more often restricted by family or financial considerations; and
 - (iii) Advertise what USC is doing to foster the careers and women and minorities, and encourage candidates to apply to USC.
- Be clear on what the role of the committee is. In some cases the committee is authorized only to recommend the final candidates to be invited for interviews. In others, the committee identifies the candidates, coordinates the on-campus interview process and makes a hiring recommendation to the appropriate chair or dean. Make sure that the chair and the faculty who are designated to look at diversity candidates look at the entire pool of highly ranked candidates to help in short-listing diversity candidates.
- Having diversity in mind from the start will minimize biases in selecting candidates for the short list. Have each member of the committee read an article about hidden biases that influence decision making subconsciously. Educate the search committee and provide opportunities for discussion on diversity and equity issues, including hiring myths, stereotypes, and biases.
- Incorporate recruitment networking into professional conference attendance by department faculty.

Evaluating the Applicant Pool

- Include all committee members in the evaluation process of the entire pool.
- Develop a written list of selection criteria and a process for rating candidate applications. Research shows that having a written list of criteria helps minimize subconscious biases. Reach committee consensus on how different qualifications will be weighted. Make sure that the criteria include diversity and minimize the role of prestige of institution and adviser in selecting candidates. The key is to look at the credentials of each candidate without bias.
- Identify the top 25% of the candidate pool, and review how well each applicants' experience and commitment to diversity can contribute to the institution's diversity goal or to increasing the representation of women in the department.

- Keep records on the applicant pool and how it was short listed. These records can be shown to deans, department chairs, future search committees, etc. This will create a departmental culture that emphasizes diversity with excellence.

Interviewing the Finalists

- Consider interviewing more than one woman. Research shows that interviewers more fairly evaluate women when there is more than one woman in the candidate pool (Valian, Virginia (1999) *Why So Slow? The Advancement of Women*. Cambridge, MA: The MIT Press. See especially Chapter 7).
- Women and minority candidates often perceive the interview differently than other candidates. Make sure these candidates are interviewed by faculty who are sensitive to their perspective. Include women and minority among those seen by the diversity candidate, even if they are not from your department. Consult with the WiSE program director, your dean or the provost's office if you need help in identifying such faculty. Offer to make available a person of similar background, interests, ethnicity, or gender to give their perspectives on the campus and city climate.
- Read on how different types of candidates view differently the interview and offer. this will help bring up issues that would not be normally emphasized. These may include networking groups on campus, child care facilities, family friendly policies, etc.
- Make sure each member of the search committee is familiar with policies of family leave, tenure clock, etc., which affect more often diversity candidates.
- Offer all candidates information on who to contact to discuss special requirements or circumstances, such as the need for partner job assistance or disability accommodation, *if the candidate raises such issues*.

Concluding the Search

- Solicit written comments from all those that met with or interviewed candidates, including those who were not from your department. A rating form can be developed for this purpose that will include desired area, benefit of increased diversity, etc.
- If a diversity candidate rises to the top, inform your dean who will contact the WiSE program and the provost's office to generate an attractive offer.
- After the selection, stay in frequent contact with your top choice and the first alternate. Find out what other offers they have, so that your offer stays competitive at all times.

Resources

"The Department Chair's Role in Developing New Faculty into Teachers and Scholars" (Paperback), by Estela Mara Bensimon, Kelly Ward, Karla Sanders, Anker, 2000; available from Amazon.

NSF-ADVANCE web sites: See links in <http://www.usc.edu/programs/wise/resources/links/>.

Appendix 6: WiSE Homepage

University of Southern California

USC

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Women in Science and Engineering

About WiseOur ProgramsResourcesNews & Impact

The WiSE program is a groundbreaking effort to increase the representation and success of women in science and engineering at USC through a series of creative programs that enable women to thrive at every stage of their careers.

Committed to developing fresh approaches to policies and to building a supportive environment for both women and men, the WiSE program is driving USC to the leading edge of diversity in science and engineering.

Learn more about WiSE programs and activities ▶

Latest News
Reisler and Cassidy Honored for Mentoring
Next WiSE Event
View Pictures from Past WiSE Events in the Archive

▶ Apply Now
Complete and Submit an online application for competitive WiSE Grant Programs

Reviewer Login

“ The initiatives of the WiSE program are making a vital difference in the lives of women at USC. This represents a crucial investment in the advancement of scientific fields and is essential to the continued academic momentum of our university. ”
-C.L. Max Nikias
Provost and Senior Vice President for Academic Affairs



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Appendix 7: WiSE Brochure Programs for Undergraduates

Outside:

Finding a Faculty Mentor and Research Topic

Students are responsible for finding an eligible mentor that will help them design a research project, assist with the application process, and provide a strong letter of support!

The best sources of information about the research areas of science and engineering faculty are their departmental or laboratory web pages. Students who have developed a relationship with a faculty member through classes or advising sessions about contact those professors for assistance in identifying a potential mentor.

The WiSE program can also assist students in matching their interests with a research-active faculty member.

Issues to consider when choosing a mentor:

- What are the research interests and current projects of the faculty member?
- What are the expectations and policies, including the process and frequency of communication?
- What is the laboratory research environment, including the number of undergraduate and graduate students and postdoctoral scholars in the lab?
- Does the lab offer further opportunities for professional development, such as publishing or presenting results?

Both the faculty mentor and the student share responsibility for facilitating a good relationship, however it is the faculty mentor's responsibility to facilitate the student's exposure to various aspects of the research process and to meet regularly with the student providing guidance and feedback on their progress. Students should also be proactive, asking mentors for information, advice, and guidance that will enhance their research experience and prepare them for potential graduate study.



About the WiSE Program at USC

The Women in Science and Engineering (WiSE) program was founded in 2000 by a \$30 million anonymous gift to the USC endowment for the purpose of increasing the representation of women in science and engineering.

WiSE administers a series of creative programs and funding opportunities to encourage scientists and engineers at all levels, from undergraduate students to senior professors, to attend USC as an institution in which to study, conduct research, and develop successful careers.

We invite you to visit our website to learn more about and apply for our programs.

www.usc.edu/wise

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Eligible Departments

USC College

Biological Sciences
Chemistry
Earth Science
Kinesiology
Mathematics
Physics and Astronomy

Viterbi School of Engineering

Aerospace and Mechanical
Aeronautics and Space Technology
Biomedical
Chemical and Materials Science
Civil and Environmental
Computer Science
Electrical
Industrial and Systems







WISE Undergraduate Research Fellowships

The WISE Program at USC seeks to increase the representation of women in science and engineering.

WISE Undergraduate Research Fellowships offer exceptional students the opportunity to engage in paid laboratory research and to establish a mentor relationship with a research-active scientist early in their academic career.

With this early exposure to hands-on scientific research and guidance in exploring possibilities for graduate study, WISE hopes to enhance the potential for underrepresented students to choose careers in science and engineering.

Up to thirty WISE Undergraduate Research Fellowships are awarded each year to students in the USC College and the Viterbi School of Engineering.

Term	Award	Distribution	Commitment
Fall Term	\$2,500	\$2,000 stipend to student / \$500 to faculty mentor for project materials and supplies.	12 hours/week
Spring Term	\$2,500	\$2,000 stipend to student / \$500 to faculty mentor for project materials and supplies.	12 hours/week
Summer Term	\$5,000	\$4,000 stipend to student / \$500 to faculty mentor for project materials and supplies.	300 hours or equivalent of 8 weeks of full-time work

Application

Applicants should collaborate closely with their faculty mentor to design their research project and to prepare the application.

Detailed application guidelines and access to the online system for submission of completed applications can be found on the WISE website at www.usc.edu/wise

A faculty review committee makes funding decisions based on the overall quality of each proposal. Key considerations include:

- the student's potential to conduct outstanding research
- the extent of direct involvement of the student in the project
- the contribution of the experience to the student's education
- the faculty member's plans for direction and mentorship

What happens during the Fellowship Period?

WISE Research Fellows participate at all levels in the activities of the research group, including:

- surveying relevant literature
- designing experiments
- learning methods
- conducting experiments
- analyzing and interpreting results
- drawing and discussing conclusions
- relating specific results to the broader field
- communicating results in written and oral formats

Fellows confer regularly with their faculty mentors and participate in safety training, meetings, seminars, journal clubs, discussion groups, and other scholarly activities of the host laboratory, department, or research group.

At the end of the Fellowship period, students submit a written report of their progress and present the results of their research at the USC Undergraduate Symposium for Scholarship & Creative Work held in April each year.

Eligibility

To be eligible, students must:

- be currently enrolled at USC on a full-time basis (at least 12 units) during the semester in which they receive the award or, in the case of summer awards, the preceding semester.
- have earned at least 32 units (College) or at least 16 units (Viterbi) at USC with a GPA of at least 3.5.
- have declared a major in one of the degree programs offered by WISE-eligible departments.
- secure the support of a faculty sponsor who is a faculty member in one of these departments.
- have participated in research sponsored by the faculty member since at least the beginning of the semester in which they receive the grant, except in the summer.
- not have already received a bachelor's degree.
- work closely with their faculty mentors to select and design their research project and to prepare their application.



Andrea Chung
Chemical Engineering '07
Fellow, Summer 2006

Researching in Dr. Neelkan's laboratory under the WISE Fellowship has been one of the most rewarding experiences of my undergraduate academic education. As a chemical engineer, most of my classes focus on process design and the tried-and-true methods of engineering. However, my specific interests are more aligned with areas that are still under development today, such as alternate energy sources and bioremediation. Working with Dr. Neelkan on his microbial fuel cell project fit my interests perfectly.

Participating in the WISE program has helped to focus my research; I was given my own project to work on – not just a trial project – but one in which the results can be used by other scientists. It is also great to know that my research is being supported by the WISE program because it provides a sense of security and appreciation. This project has helped me learn about career opportunities after I graduate, and I am also considering earning a graduate degree, possibly in an area that combines both biology and engineering.



Graduate Research Fellow, Wrigley Chair in Environmental Science, with Chung, and collaborating doctoral student in Materials Science, Chandra Bratsberg.

Inside:

Appendix 8: WiSE Brochure Programs for Ph.D. Students and Postdocs

Outside:

Travel Grants

One of the proven ways to increase the representation of women in science and engineering is to provide young scholars at the beginning of their careers with opportunities for professional exposure in scientific meetings. Not only are they recognized for their research, they also have the opportunity to meet well-known scientists, other students, and successful women/faculty who can serve as role models.

WiSE provides travel grants to USC Ph.D. students and postdoctoral fellows in science and engineering departments to attend scientific meetings in cases where either the participation by the student or the subject matter of the student's talk or poster serves to increase the representation of women in science and engineering.

To be eligible, the student/postdoctoral scholar must be an author on the abstract and present either a talk or a poster at the proposed meeting. The specified dollar amount or 50% of the travel expenses, whichever is less, will be paid by WiSE, provided that the student or postdoctoral scholar's advisor makes an equal contribution of the total meeting expenses from their research funds.

Award Amount	Travel Distance
\$300	Within the State of California
\$500	Within the United States
\$700	International

Reimbursement of the award amount or 50% of the approved travel expenses, whichever is less, will take place after submission of all receipts, according to University regulations.



About the WiSE Program at USC

The Women in Science and Engineering (WiSE) program was founded in 2000 by a \$20 million anonymous gift to the USC endowment for the purpose of increasing the representation of women in science and engineering.

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Women in Science and Engineering

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Programs for Ph.D. Students and Postdoctoral Scholars



Inside:

Programs for Ph.D. Students and Postdoctoral Scholars

The WISE program seeks to increase the representation of women in science and engineering at USC and beyond.

The WISE program at USC is distinct among similar efforts for its comprehensive series of programs that target scholars at various stages of their careers, not just at the faculty level.

WISE administers several programs aimed at Ph.D. students and postdoctoral scholars, focused on recruitment and retention of outstanding early-career scientists.

Program	Award
Ph.D. Student Top-Off Award	\$5,000/year for two years
Ph.D. Merit Fellowship	\$5,000/year for one year
Postdoctoral Fellowship	\$25,000/year subsidy for two years
Travel Grants	\$300-\$700 (depending on distance)
Childcare Subsidies	\$4,000 annually
Fellowship to accommodate Pregnancy, Childbirth and Adoption	Variable award

Eligible Departments

USC College	Viterbi School of Engineering
Biological Sciences	Aerospace and Mechanical
Chemistry	Electrical and Systems
Earth Science	Industrial and Systems
Kinesiology	Industrial and Systems
Mathematics	Industrial and Systems
Physics and Astronomy	Industrial and Systems



Ph.D. Top-Off Awards

The Graduate Top-Off Fellowship program facilitates the recruitment of outstanding doctoral students to USC. Funds from the WISE program provide \$5,000 stipends to each of four incoming Ph.D. students, nominally by their departments in the USC College and the Viterbi School of Engineering, and may be renewed for a second year pending good progress in the student's program.

Nominees must be offered some other substantial form of support, a fellowship (with a stipend at least equal to that of a 50% graduate assistant), a 50% teaching assistantship or a 50% research assistantship.

Merit Fellowships for Continuing Ph.D. Students

The Merit Fellowship for Current Doctoral Students is offered to current Ph.D. students at USC who demonstrate exceptional work in their field. Two recipients are selected annually from the USC College and two from the Viterbi School of Engineering. Each one-year WISE Fellowship carries a stipend of \$5,000.

Candidates are nominated by the faculty. In order to be eligible for a WISE Merit Fellowship, the students must have passed their qualifying examination and must be funded by a 50% time research assistantship, teaching assistantship, or fellowship.

Postdoctoral Fellowship

The primary goal of the postdoctoral program is to attract outstanding postdoctoral fellows to USC, and to prepare them for successful academic careers by providing them with excellent research and professional development opportunities and mentoring. Up to four \$25,000 awards will be awarded each year in matching funds to excellent candidates who plan to work with USC faculty members who have a strong track record of successfully placing students and postdoctoral fellows in academia.

Fellowship Support to Accommodate Pregnancy, Birth, and Adoption

One of the most important issues to increasing the representation of women in science and engineering is the balance of career and family obligations. For young scientists and engineers, this balance primarily involves childbirth, adoption, nursing and infant care. The WISE fellowship program helps Ph.D. students or postdoctoral scholars and their advisors solve any conflicts that arise between the constraints of pregnancy, childbirth, adoption, nursing and infant care and the continuing work of the research program.

The program engages participation of all levels: advisor, department chair, dean, and university administration. In an effort to help a Ph.D. student or postdoctoral scholar who is pregnant and gives birth or adopts a child to continue her or his career with the least possible interruption, the fellowship also aims to send a clear message to young scientists and engineers that the academic environment is family-friendly. This will encourage Ph.D. students or postdoctoral scholars to continue their academic training and later consider academia as a viable career option.

Postdoctoral scholars with full funding and full-time Ph.D. students with 50% time assistantship funding who become pregnant, give birth, or adopt a child and are enrolled in one of the WISE eligible departments are eligible to apply.

Child Care Subsidy

WISE awards annual child care subsidies for eligible doctoral students and postdoctoral scholars with primary childcare responsibilities. The child must be under the age of five, be of any race, age range, and already enrolled at the USC Child Care Program.

The WISE child care subsidy is paid in a monthly supplement which is equivalent to \$4,000 over a 12-month time period and can be provided mid-year.

