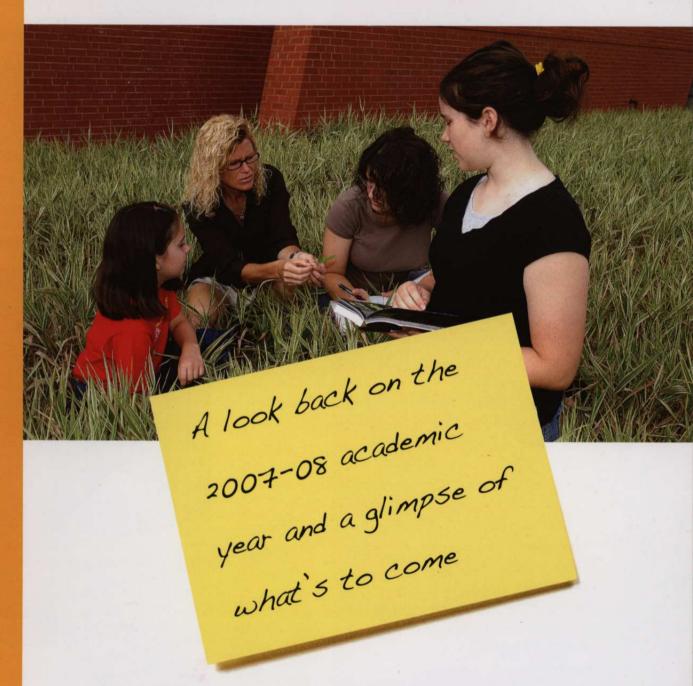
IOWA STATE UNIVERSITY

Program for Women in Science and Engineering



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Janine Keeley, Advisory Board President, Emerson Process Management

Scott Bowman, KJWW Engineering Consultants

Ashley Disburg, Undergraduate Student—Civil Engineering

Mary Goodwin, College of Engineering

Carol Hendrick, Pioneer Hi-Bred International

Janice Hubbard, Marshalltown Community College

Iris Ilarslan, Undergraduate Student-Genetics

Nancy Knight, College of Engineering

Andrea Meyer, Cargill, Inc.

Jennifer Owens, College of Liberal Arts and Sciences

Linda Powell, Guthrie Center Community Schools

Pam St. John, Maytag—TPI

Ann Smiley-Oyen, College of Human Sciences

Adriane Van Auken, Rockwell Collins International

Corporate Sponsors

Accenture Foundation

Alcoa Foundation

Alliant Energy Foundation

Cargill Foundation

Emerson Process Management

John Deere Foundation

Rockwell Collins

Weitz Corporation

Services Provided

K-12 and Community College Outreach

Taking the Road Less Traveled career conferences

Student role models

GirLinks e-mentoring

Scholarships

Transitional

WiSE Getaway—high school visit program
Individual and group visits with prospective students

Success/Retention

WiSE Learning Communities

Sophomore Success Seminar

Scholarships

Undergraduate summer research program

Support for student organizations

Academic support programs (help sessions, tutoring)

Leadership development programming

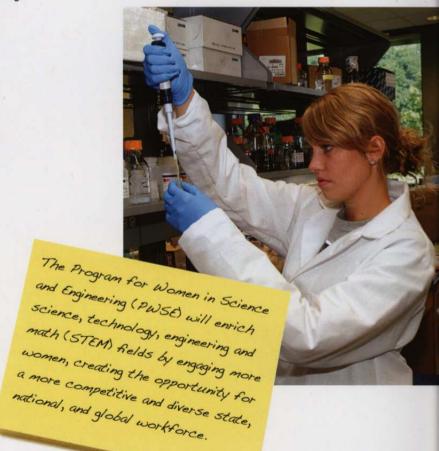
MentorNet e-mentoring program

Resource to Others

Support for other STEM or gender issues on campus and statewide

Involvement with other programs/grants on campus: NSF Advance, Women's Leadership Consortium, Learning Communities, etc.

Leadership within WEPAN national organization



A Word from the Director

Greetings from the Program for Women in Science and Engineering (PWSE) at Iowa State University! During spring 2007 we celebrated PWSE's 20th anniversary with a dinner on the Iowa State campus. As people were leaving, there were many comments about how the reflection on our past was a great "re-energizer" for moving forward. The PWSE staff definitely felt the excitement and spent much of the summer and fall of 2007 developing a strategic plan to guide the program over the next five years. In addition to developing a new mission, vision, and culture as well as value statements, the planning process identified five priorities that will be addressed in the coming years.

The staff has taken the priorities and developed very specific strategies and timelines for each strategy for the next five years to ensure that we actually are making progress. (At the staff members' suggestion, there are large posters of the tactical plans with tasks assigned to individual staff members hanging in each of our offices. There is nothing like a large poster with action items and dates posted prominently in your office to get you to follow through on ideas!)

A few highlights of activities that were "new" or "out of our normal operation" compared to previous years that are direct results of the new strategic plan include the following:

- · Three staff members making a trip to Sioux City to talk with faculty, staff, and administrators about partnerships with Western Iowa Tech
- · A complete revision of the PWSE Web site to improve access to information and aid in attracting more students into STEM
- · Collaboration with the University of Iowa WiSE program and the Department of Education on a grant that will impact K-14 educators and the pipeline of students into STEM at the university level programs, share knowledge, and engage people to enhance the STEM educational
- · Partnering with the Bioeconomy Institute at Iowa State to capitalize on the enthusiasm with the state for biofuels and the possibilities that has for bringing more women into STEM
- · Developing an outreach program (with several other offices on campus) for middle

school students in Marshalltown and Perry, where there are high immigrant populations

experience for women.

If you notice a theme of these highlights—it is "partnering". Our staff size has not grown to allow us to expand our programming/impact. However, through increasing our partnering with others, we are hopeful that PWSE can have an even greater impact (and see more women entering STEM) in the coming years. As evidenced by the financial summary, the majority of the funding for programs offered by PWSE comes from internal/external gifts and grants. I would like to thank all of our partners, both within and outside of Iowa State who provide us with the opportunity to pursue our vision to "enrich science, technology, engineering and math (STEM) fields by engaging more women, creating the opportunity for a more competitive and diverse state, national, and global workforce."

The annual report provides a quick look at what has been accomplished during the 2007-2008 academic year. It really has been a great year of progress! As you read through the report, if something strikes a chord with you, remember we are always excited to talk with individuals, businesses, or organizations who are interested in becoming involved with our mission!

2007–08 by the Numbers....

- 2912 registrants for Taking the Road Less Traveled career conferences for 6-12-grade girls, parents, educators
- 234 first-year, transfer, and sophomore students in the WiSE living and learning communities
- 23 students participating in sophomore-year seminar course
- 6,334—total number of individuals reached by outreach programming during the year (an increase of 834 individuals from previous year)
- \$29,200 in scholarships for women in science and engineering
- 31 undergraduates involved in summer research program
- 15 high school students and 36 undergraduates participated in the GirLinks online mentoring program that matches undergraduate students with high school students
- · 67 Learning Community students and peer mentors participated in the Cargill Leadership Retreat
- 3,379 K-12 students reached by Student Role Model program
- · 27 high school students from across the country attended the 2008 WiSE Getaway, and nearly 100 undergraduate students served as hosts and volunteers
- · 2,733 students receiving weekly updates from
- · Average of 600 women receiving BS degrees in STEM fields each year over the past five years
- PWSE staff met with 166 prospective students (total of 415 visitors including family members) during the year
- 31.5% of the undergraduates enrolled in STEM fields at Iowa State were women
- 15 state leaders for the Girl Scout Council were reached through their statewide meeting
- 150 AEA science specialists and K-12 science teachers were reached at the statewide Every Leader Inquires Conference
- 23 students participated in the new second-year success course: U ST 201X
- 70 second-year undergraduates attended networking events with professionals

Karen Zunkeil, PhD

Outreach Programming Highlights

Outreach Partnerships

PWSE continues to collaborate with programs across the state to offer experiential activities to stimulate the interest in STEM fields among Iowa youth. Examples of programs resulting from collaboration with others include:

- Partnering with Carla Espinoza (associate vice provost for human resources and director for equal opportunity and diversity) and Larry Genalo (materials science and engineering faculty member and TRLT presenter) on a Women's Enrichment diversity grant, the purpose of the grant is to engage Iowa State female undergraduate engineering students (PWSE Student Role Models) in outreach and mentoring efforts with 7th- and 8th-grade minority students from Perry and Marshalltown
- Serving on the Iowa Mathematics and Science Coalition to develop, plan, and coordinate the Iowa Student STEM Conference
- Working with the Department of Education, Iowa AEA, and K-12 science teachers on incorporating our Student Role Model activities with the Every Learner Inquires model
- Partnering with ISU Extension and the engineering college on the Engineering Talent in Every County (E-TEC) project as part of the Student Enrollment and Engagement through Connections (SEEC) initiative between Iowa State and DMACC
- Serving on the Board of Regents Title II Committee, which is a federal grant program to improve teacher quality
- Partnering with the Iowa Commission on the Status of Women and the Iowa Department of Education on a statewide essay contest about historical women in STEM
- Collaborating with the Moingona Girl Scout Council to provide day-long experiences for Girl Scouts and Brownies (BEST and GEMS)
- Sponsoring awards for outstanding essay entries related to Women in Science and Engineering for the National History Day in Iowa Event
- NW Iowa Extension Technology Team—Robotix train the trainer program facilitated by our Student Role Models
- · WINGS Career Conference in northwest Iowa.

Career Conferences

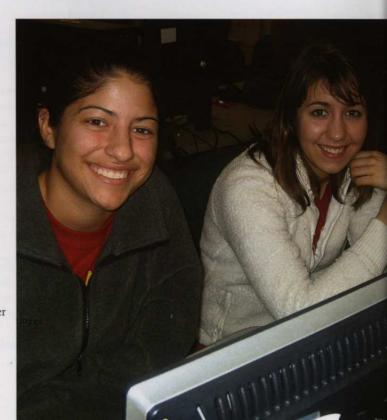
PWSE has been sponsoring *Taking the Road Less Traveled* career exploration conferences for girls in grades 6–12 each year since 1987. Six conferences were offered during FY08. The conference format includes career exploration workshops led by women working in science, engineering, and other technical fields; tours of Iowa State labs and facilities; and special sessions for parents and educators. This year 2,912 participants attended the conferences. This brings the total number of participants, since program inception, to 44,234. The April Conference Series had a waiting list of approximately 300 participants. As a result, and in addition to the feedback that we receive from the Outreach Needs Assessment, we will determine the feasibility of increasing the number of conferences offered to four in the spring, or discuss other alternatives to allow for more participants.

Student Role Model Program

Created to encourage K-12 students' interests in science and math fields, the Student Role Model program offers exciting challenges through hands-on activities facilitated by Iowa State undergraduate student role models. Through this program, undergraduate students majoring in science, technology, engineering, and math visit classrooms, community centers, and school fairs across the state. The role models visited 69 schools during the 2007-2008 year and reached 3,379 students (including 1,684 female [50%] and 497 [15%] minority students). There is no fee for the requesting school or organization, but the teachers are encouraged to complete a short evaluation of their experience with the Iowa State student role models. During the 2009 academic year, we will be incorporating the Inquiry Based Learning Model into the SRM training and school visits to correspond with the Every Learning Inquires and Statewide Core Curriculum initiatives. One comment from a teacher who had a role model visit her classroom this year: "Niki just finished up here and she did a FABULOUS job with my 3 math sections! Year after year, PWSE at ISU sends me outstanding role models to speak in my classroom."

GirLinks@iastate Mentoring

GirLinks is an online mentoring program that matches 9th–12th-grade females interested in science, technology, engineering, and math to Iowa State undergraduate students majoring in similar fields. Communicating via e-mail at least twice a month, pairs discuss classes, fields of study, student organizations, professors, and everything in between! The goal of GirLinks is to aid high school students in the transition to college, and monthly evaluations are required to monitor the success of the program. In 2007–2008, 15 high school students completed the yearlong mentoring program. Thirty-six Iowa State undergraduate women signed up to serve as mentors to these students. As high school students' interests changed and/or to accommodate students with multiple interests, some students were matched with more than one mentor over the course of the year. Evaluation results indicate that it is a valuable experience for both undergraduate and graduate students.



WiSE Getaway

Designed to introduce female high school seniors to the science, technology, engineering, and math fields, Getaway allowed 27 students from across the country to "try on campus." During the 2008 event, students

- spent two nights in the residence halls with a WiSE student host(s)
- · ate in the dining halls
- · attended actual classes
- participated in unique Iowa State activities like broomball and glass blowing

Through community building, Getaway hopes to recruit prospective students to Iowa State and the WiSE Learning Community. By emphasizing the student-centered learning community, students were introduced to a peer network that will hopefully alleviate the apprehension and isolation felt when attending a large university. The partners for this year's event included Women in Science and Engineering (WiSE) student organization, the Department of Residence, the Office of Admissions, Dining Services, the College of Engineering, the College of Liberal Arts and Sciences, and Reiman Gardens.

Community College Initiatives

Although PWSE has had a learning community for transfer students for several years, this past year program staff has begun to explore additional partnerships and programming with Iowa's community colleges. PWSE staff members are key personnel in a National Science Foundation grant that partners Iowa State's College of Engineering and Des Moines Area Community College. This grant is looking at increasing the number and diversity of students who transfer into the College of Engineering from the community college. The grant includes initiatives related to marketing of engineering to K-12 and community college students, connecting community college students earlier to Iowa State University, and transforming the Learning Communities into a Learning Village to allow for connections across disciplines, reviewing curricular offerings to ensure ease of transfer, etc. Examples of activities/efforts being explored include

- expanding current programs like GirLinks, scholarship, and internships to include community college students
- making current opportunities in PWSE more visible in new marketing pieces and Web sites
- developing an Iowa State experience similar to Getaway for community college students transferring to Iowa State

PWSE staff has also held a group meeting with faculty, staff, and administrators at Western Iowa Tech in Sioux City. This meeting included sharing information on PWSE programming, the issues of women in STEM, and discussions on what needs/collaborations might be possible between PWSE and WIT. The director of PWSE also held a one-on-one meeting with a math faculty member at Marshalltown Community College to brainstorm potential ideas and gain insight into the issues facing community colleges. An immediate outgrowth of these discussions is that PWSE has received an internal Iowa State grant to develop a special "visit program" for women in STEM fields at Iowa's community colleges. This trial program will be held during fall 2008. These discussions will help to frame further initiatives and conversations with community colleges, as PWSE works to attract more students into STEM.



Quotes from *Taking the Road Less Traveled* Career Conference Participants:

"It's a long drive from Dubuque, but very worthwhile. News has spread over the years and I was excited to have 20 girls who wanted to come." (adult)

"The conference helped with what I want to do with my life. I especially enjoyed the pharmacy and I am considering it as a career." (student)

"It was interesting to find out how many different things you can do in the science field. I leaned about many different opportunities that I had never even heard of before." (student)

Share knowledge on innovative

strategies, best practices, and

research on the success of women
in STEM with a broad range of
individuals and organizations serving as
individuals in transforming the STEM
partners in transforming the STEM
educational experience for women.

Programs for Undergraduates

Cargill IT Connections Scholars

With the support of Cargill, PWSE offered the Cargill IT Connections Scholars program for the second year in spring 2008. This is a targeted program for women in information technology (IT) degree programs at Iowa State. Five women enrolled in computer science and computer engineering were selected to receive a scholarship from Cargill and participate in activities focused on connecting women in IT. Participants had the opportunity to meet with IT professionals at Cargill's headquarters in Minneapolis, Minnesota and on the Iowa State University campus. They also connected with middle and high school students, leading hands-on IT-related sessions for the Taking the Road Less Traveled career conferences. Women account for less than 10% of the enrolled students in these fields, so targeted programs to raise awareness and develop connections between women in these fields is critical.

Scholarships

During FY08, 29 scholarships totaling \$29,200 were awarded to female undergraduate science or engineering students through funding provided by external gifts. This brings the total amount of scholarship money awarded by PWSE to \$374,215 since program inception. Scholarships awarded this past year included

- Endowed scholarships for Sylvia Stoesser, Laurel Ann Crowe, and Charlie Wright, Jr.
- IT Connections scholarships funded by Cargill, Inc., for students in information technology degree programs
- Non-endowed scholarships awarded by PWSE to support firstyear and returning students in STEM fields

WiSE Learning Communities

The Women in Science and Engineering (WiSE) Learning Communities are a living and learning opportunity for first-year, second-year, and transfer women in science and engineering. The program began in FY96 with 52 first-year students and has grown to 234 first-year, second-year, and transfer students participating in the program.

First-Year Learning Communities

The option, offered in conjunction with the Iowa State Department of Residence, places its participants on nine different residence hall floors with other undergraduate women in science and engineering programs of study. Nine peer mentors, upper division students in STEM majors, lead teams of twenty to twenty-five students in various social, academic, and leadership programs.

Because of strong interest among potential students, the Department of Residence continues to provide additional spaces to meet student demand. In addition to living together, students have the option of taking a combination of courses together. In the fall of 2007, WiSE sponsored seven "learning teams" for over 132 students within the overall WiSE Learning Community. The teams included

- Two Calculus I/General Chemistry teams
- · Two Calculus II and Chemistry teams
- · One General Biology/General Chemistry team
- · One Calculus/Chem for Engineering team
- · One Biology/Math team for students in life sciences/pre-health

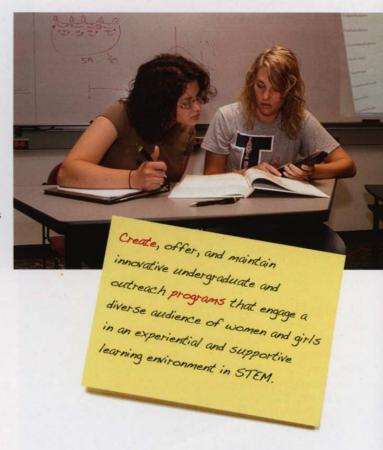
Transfer Learning Communities

In 2007–08, the eight-member WiSE Transfer learning team's residential component included group living in the Frederiksen Court apartments. The team enjoyed social, professional, and academic group activities planned by their peer mentor. The WiSE Transfer team met weekly, interacted with the Mechanical Engineering learning teams, participated in all WiSE activities, and completed a community service 10K walk/run as their service learning project in the spring. We are looking forward to continued success with our transfer students and assisting new APP students as they make the transition to Iowa State.

Second-Year Success Learning Communities

Through support from Alcoa, PWSE offered a series of workshops, a new learning community with a seminar and tutoring in order to better meet the needs of second-year students. A total of 23 students participated in the new course (U ST 201x) and learning community. Over 100 students participated in a series of optional events exclusively for second-year students that included

- a semester-long book discussion group offered both fall and spring semesters
- · networking events with professional women in STEM
- · attending cultural events and discussions
- · dinner and documentary discussions
- workshops on leadership, setting priorities, and interviewing skills
- attending tours to General Mills, Alcoa, and the University of Iowa Hospitals



Service-learning

A special emphasis was placed on service-learning during 2007–08 in the WiSE Learning Communities. A practicum student from the Educational Leadership and Policy Studies program worked with the various learning communities conducting trainings and managing projects. Students were encouraged to create groups and work with community agencies to serve a need in the area and reflect on their learning through the project. Projects included

- · Habitat for Humanity in Story County
- · Science Fair judging
- Canstruction (a design and build competition using cans of food with the proceeds being donated to the Food Bank)
- · Relay for Life
- · Programs for classrooms in K-12

Leadership Development

The WiSE Learning Community continued its third year of leadership development by integrating leadership principles into the daily activities of the learning community students.

Sponsored by Cargill, Inc., the WiSE Leadership Initiative enhanced current programming by

- offering a variety of programs and workshop experiences focused on professional, academic, and collegiate leadership
- giving students the opportunity to develop and reflect upon their leadership skills through a service learning project

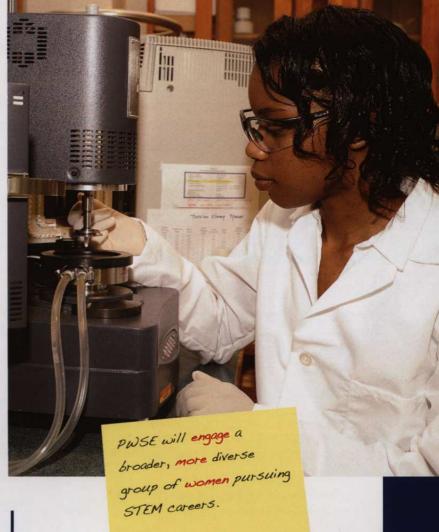
Sixty-seven WiSE students and peer mentors were able to participate in the Cargill Leadership Retreat in February 2008. This retreat provided opportunities for participants to learn about different leadership styles and gain tools to assist them in leadership positions in the future.

In addition to attending programs, the WiSE first-year students were encouraged to put what they learned into practice by becoming leaders...

- "WiSE has developed my leadership skills because they provide many opportunities to become a leader. I was a co-leader for the Relay for Life event for our learning community."
- "Hosting a student for the WiSE Getaway Weekend encouraged me to become a Destination Iowa State team leader next year."
- "It gave me a chance to demonstrate leadership skills within my team. I learned more about being a leader at the leadership conference. Next fall I'm going to be a peer mentor in WiSE, which will allow me to be a leader to the new WiSE members."

Academic Support

PWSE organizes group study sessions for key introductory courses (such as calculus and chemistry). These sessions, which are typically facilitated by female graduate students, are open to all interested students. Attendance at the weekly sessions ranges from 5 to 25 students per course. In addition, WiSE Learning Community students have the opportunity to receive additional small group or individual tutoring funded by WiSE. PWSE also coordinates the tutoring support provided by the College of Engineering for women undergraduates enrolled in that college.



Electronic Mentoring

This past year, 61 Iowa State students participated in the online MentorNet community. Of these students, 24 participated in the one-on-one e-mail mentoring program within MentorNet. MentorNet is a national online community and mentoring program for women in engineering and science fields. The MentorNet membership fee of \$3,000 was shared by the College of Engineering and PWSE.

Summer Research Internships

The PWSE Summer Intern Program allows students to work on a variety of projects and gain hands-on research experience under the supervision of Iowa State faculty and staff. In addition, they attend seminars, write research reports, and summarize their research in poster presentations. Funding to provide stipends to the interns comes primarily from Iowa State colleges and other administrative units and from faculty grants.

During summer 2008, 31 undergraduate students participated in the intern program. Interns worked for eight weeks and were paid a stipend of \$3,500. The total number of students that have participated in the program now totals 1,005.

Look to the Future

In 2008–09, the Program for Women in Science and Engineering anticipates making significant progress on several priorities of the new strategic plan. Areas that will receive targeted effort this coming year include

- Working with a consultant to develop and administer a
 needs assessment to better understand the needs in K-12
 related to women in STEM programming; the goal of the
 needs assessment is to identify how/where PWSE should
 be changing its programming to create a larger impact on
 young women across the state of Iowa
- Continuing discussions and planning with community colleges on how to better serve and recruit students in STEM fields
- Expanding statewide partnerships in several areas, including involvement with
 - the math and science coalition conference for high school students
 - the Technology Association of Iowa on Women of Innovation awards
 - the other Regent universities reporting back to the legislature on the status of women and minorities in STEM
 - the Iowa Department of Education on a NAPE/NSF grant related to K-14 women in STEM educators training
- Developing new marketing materials and images (including new Web site, new brochure, new poster to distribute to ISU Extension offices and schools, etc.)
- Creating new programming with the College of Engineering for women in two Iowa cities that have large populations of immigrants

In addition to making progress on the new strategic plan, there will be extra effort this coming year on program fundraising/financial support.

New gifts to the

Iowa State University

We value people as individuals, integrity and accountability, inclusion, collaboration, leadership, and excellence in all we do.

Foundation for PWSE decreased over 40% this past year compared to previous years. Some of that decrease is due to timing issues of gift receipts; however the tightening economy is also impacting the program. Since the vast majority of non-salary/program funds for PWSE come from grants and gifts, it is critical that the program develop long-term funding plans.

Financial Summary

Revenues

PWSE General Fund Budget	275,369
Iowa State University Foundation (Gifts, Grants, Earnings)	129,774
Internal Iowa State Grants/Reallocations	47,026
External Grants (Faculty Summer Interns)	61,683
Participant Fees	41,789
Greater University Funds for Excellence	41,000
Total Revenues	596,641

Expenditures

Salaries	292,491
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On-Campus Programming 189,313

Summer Intern Program

Learning Communities

Scholarships

Cargill Leadership Initiatives

Second-Year Programming

Cargill IT Scholars

Academic Support

Other On-Campus Programming

Outreach Programming 79,809

Career Conferences

Student Role Models

WiSE Getaway

Outreach Initiatives

GirLinks

Administration 35,028

Computers and Phones

General Administration

Remodeling of PWSE Space (for grad student workstations)

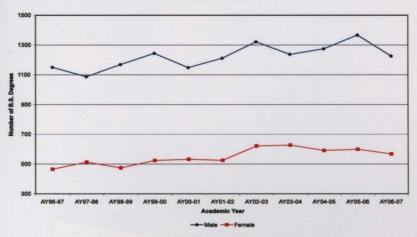
Supplies

Marketing

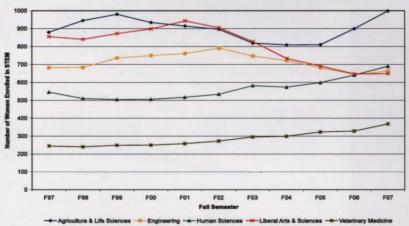
Staff Development/WEPAN

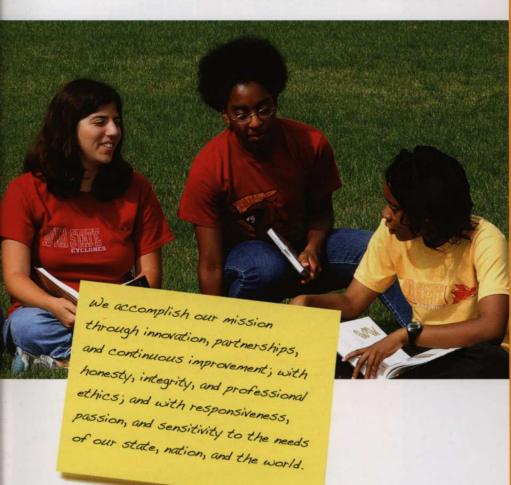
Total Expenditures 596,641

B.S. Degrees in STEM Fields by Gende



Enrollment of Undergraduate & Professional (Vet Med) Women in STEM Fields lowa State University







The best part of the WiSE Learning Communities was....

"Meeting my best friends."

"All the girls on my floor, we all became really good friends. I had a blast with all those girls this year and look forward to more memories next year."

"Knowing that I could ask people on my floor about homework because they were in the same classes."

Thoughts from Second-Year Learning Community/Course

"This was a great way to continue the support from my freshman year."

"The sophomore learning community has reassured me about my career choice."

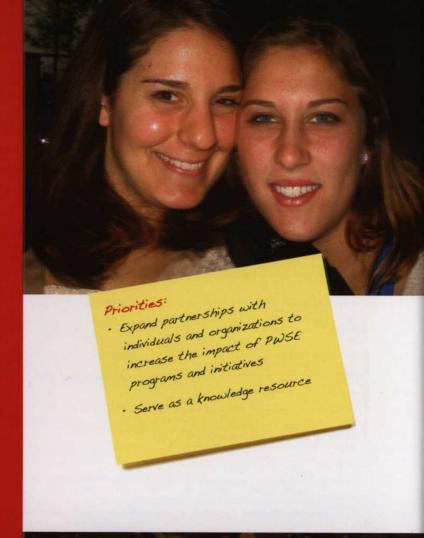
"I believe I really learned more about myself and what I want to accomplish."

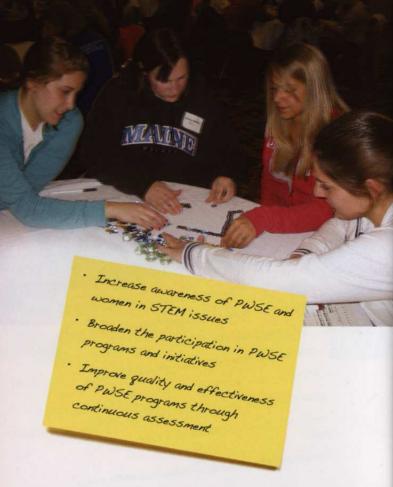
WiSE Learning Communities First-Year, Second-Year, and Transfer 2007–08

College of Agriculture and Life Science	Total
Agronomy	2
Animal Science	17
Biochemistry	7
Biology	19
Dairy Science	2
Environmental Science	1
Genetics	6
Horticulture	2
Microbiology	4
Total	60
College of Engineering	Total
Aerospace Engineering	8
Agricultural Engineering	8
Chemical Engineering	20
Civil Engineering	11
Computer Engineering	3
Construction Engineering	7
Electrical Engineering	1
Engineering Undeclared	37
Industrial Engineering	4
Materials Engineering	6
Mechanical Engineering	7
Total	112
College of Human Sciences	Total
Dietetics	1
Health and Human Performance	11
Total	12
College of Liberal Arts and Sciences	Total
Biological/Pre-Medical Illustration	2
Biology	6
Chemistry	6
Computer Science	2
Environmental Science	2
Genetics	5
Mathematics	1
Meteorology	9
Open Option	8
Physics	2
Pre-Professional Health Programs	3
Preparation for Human Medicine	4
Total	50

234

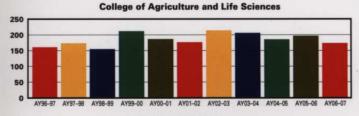
Overall Participation

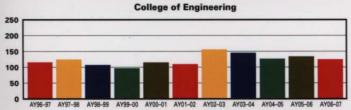


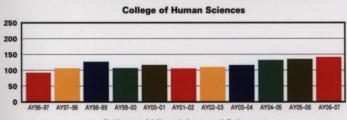


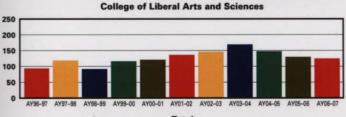
Bachelor Degrees in STEM Fields Awarded to Women Academic Years 1996–97 through 2006–07 at Iowa State

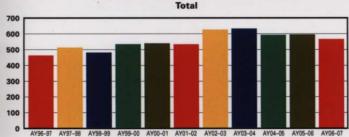
Number of Female B.S. Graduates in STEM



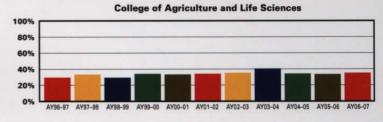


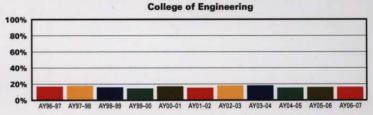


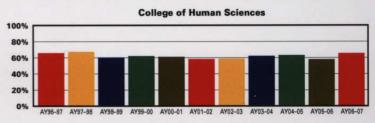


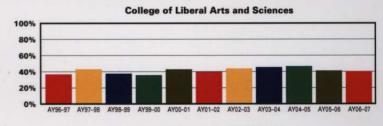


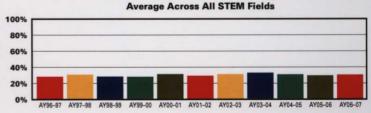
Percent of B.S. Graduates in STEM Who Were Female











Praise for Peer Mentors

"My WiSE peer mentor gave me information and someone to look to if I needed help. It eased my transition to college even more than other college help units."

"My mentor has been supportive and a good role model. She knows what I can expect in the future and helps to guide me."

"I can trust my mentor and it is comforting to know that she is looking out for me here on campus."



IOWA STATE UNIVERSITY



Program for Women in Science and Engineering