

# **ANNUAL REPORT**

**2006 - 2007**

## **PROGRAM FOR WOMEN IN SCIENCE & ENGINEERING IOWA STATE UNIVERSITY**

**Submitted by**

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## **Table of Contents**

Mission and Objectives	1
Year in Review	2
Program Highlights	4
A Look to the Future	11
Progress on Objectives	12
Charts/Graphs	17
Appendices	

## MISSION

The mission of the Program for Women in Science and Engineering (PWSE) is to encourage women and girls of all ethnic backgrounds to pursue careers in science, technology, engineering, and math (STEM) fields, thereby enriching those professions through the full participation of women. PWSE collaborates with colleges and departments across the university to provide programs giving women the opportunity for exploration, professional development, and success in STEM fields.

## Objectives

The mission of PWSE is in congruence with the university's mission to increase the diversity of the institution, by increasing the number of women in degree programs where they are traditionally under-represented. In support of the mission, PWSE has several key objectives that are used as benchmarks for measuring the success of the program. These objectives are as follows:

1. Increase the number and diversity of women pursuing STEM degrees.
2. Increase the number and diversity of women graduating in STEM fields.
3. Provide academic programming to support the educational success.
4. Facilitate the development of leadership and career enhancing skills.
5. Facilitate mentoring and networking opportunities.
6. Provide career exploration opportunities to young women statewide.
7. Provide financial assistance to women students through scholarships, employment, and internships.
8. Facilitate the involvement of women students within the larger academic community.



PWSE Anniversary highlighted on the Big Screen of Hilton Coliseum during the Iowa State vs. Kansas State women's basketball game.

## YEAR IN REVIEW

During the 2006-07 year (FY06), PWSE offered a variety of programs to encourage and support women in STEM fields. The program continues to enhance our signature programs, while building new initiatives to have even greater impact towards achieving our mission. PWSE continues to be a leader both within Iowa State University and nationally related to women in STEM fields.

Highlights for the 2006-2007 year include:

- Celebration of the 20<sup>th</sup> Anniversary of PWSE!
- Six career conferences (2712 registrants) for 6-12 grade girls, parents, and teachers
- Seven course clustered learning communities were offered for 132 students
- 199 first-year students in the WiSE living and learning communities, 10 students in the Transfer Learning Community and 74 returning students to WiSE floors
- Development of programming initiatives for second-year female students in STEM fields through funding awarded from Alcoa.
- Two presentations on second-year students were made to the local Iowa State University Learning Communities Institute and the national Women in Engineering Program and Advocacy Network (WEPAN) Conference in Orlando, FL
- Three WiSE peer mentors were nominated for Learning Communities' Exemplary Peer Mentor Awards. Student role model program reached 3851 students via 68 visits
- \$29,200 in scholarships for women in science and engineering
- Summer research internships for 32 students
- Continuation of an online survey for assessing the WiSE Learning Community and WebCT for communication for students and peer mentors
- 27 high school students and 31 undergraduates participated in the GirLinks on-line mentoring program that matches undergraduate students with high school students.
- 60 Learning Community students and peer mentors participated in the third Cargill Leadership Retreat held in Des Moines
- Continuation of a scholarship/outreach program targeting women in the Information Technology (IT) fields.
- Leadership in broader Learning Communities initiative through service to ISU Learning Community Advisory Council, Learning Community Committees, and presentations at ISU Learning Community Institute.
- National leadership through the PWSE Director's position on the board of the Women in Engineering Program and Advocates Network (WEPAN) national organization.
- Student Role Models partnered with ISU extension to facilitate a train-the-trainer session with the NW Iowa Technology Team using the Robotix system. Following the session, the 11 member technology team co-hosted an afternoon "Robot Built Camp" for 40 4<sup>th</sup>-6<sup>th</sup> grade students.
- Student Role Models participated in the NW Iowa WINGS Career Conference for approximately 250 8<sup>th</sup> grade females, which was co-sponsored by Western Iowa Tech, Morningside College, and Briar Cliff University.
- The Student Role Model Program reached nearly 4000 students during 68 visits.
- Throughout the year, 58 students (31 undergraduate and 27 high school students) participated in the GirLinks e-mentoring program that matches high school students interested in the STEM fields

with undergraduate mentors majoring in a similar field. 23 high school students and 23 undergraduate mentors were still active at the end of the year having fulfilled all the components of the program.

- 57 high school students from across the country attended the 2007 WiSE Getaway, and nearly 100 undergraduate students served as hosts and volunteers.
- Kristin Menning, Career Conference Assistant, was recognized as Iowa State University's and the Midwest Region's Student Employee of the Year for the contribution she has made to PWSE over the past 3 years.

### 20<sup>th</sup> Anniversary Dinner Photos



Keynote speaker, Pat Boddy, engages the crowd.



Individuals in attendance who also attended the initial meeting to discuss forming PWSE in 1986. (L-R) Liz Beck, Pat Murphy, Bonnie Glatz, Lois Tiffany, Kathy Trahanovsky, Mary Ann Evans. (Also in attendance: Ruth Swenson and Eugenia Farrar.)

## PROGRAM HIGHLIGHTS

### SPECIAL PROGRAMS...

#### CELEBRATING 20<sup>th</sup> ANNIVERSARY

The Program for Women in Science and Engineering celebrated its 20<sup>th</sup> anniversary throughout the 2006-07 academic year. Events associated with the celebration included The following:

- a PWSE pre-game social and group outing for 100 supporters, donors, volunteers, and students at the Women's Basketball game versus Kansas State on January 27<sup>th</sup>.
- a celebration dinner and awards ceremony attended by 132 on April 10 in Scheman Building.
- Recognition of PWSE Champion Awards for 12 individuals and 5 corporations who made a significant impact on the program during its first 20 years.
- Display in VEISHEA Village highlighting PWSE programs, history, and providing youth with hands-on activities facilitated by PWSE Student Role Models
- Special 10<sup>th</sup> Anniversary PWSE Awards for student projects at the State Science and Technology Fair of Iowa and the State of Iowa National History Day programs.

PWSE Champion Award Recipients recognized as part of the 20<sup>th</sup> Anniversary Celebration included:

- Don Beitz
- Pat Boddy
- Scott Bowman
- Mary Ann Evans
- Eugenia Farrar
- Larry Genalo
- Bonnie Glatz
- Laura Hanson
- Lorraine Hoffman
- Lisa Lorenzen
- Sandy Stoltenow
- Loren Zachary
- Alcoa

- Cargill
- Fisher Controls
- John Deere
- Pioneer Hi-Bred

#### CLASSROOM CLIMATE WORKSHOPS FOR ENGINEERING FACULTY

PWSE partnered with the College of Engineering and the Center for Excellence in Learning and Teaching to offer a series of three workshops for faculty and staff in the College of Engineering. These workshops provided information on how to make classes more welcoming and supportive of women. An average of about 50 individuals attended each workshop, with representation from all departments and central administration of the college. The workshop series was partially funded by the P&S Recruitment and Retention grant from the university.

- Workshop 1: Increasing Participation, Leadership, and Community
- Workshop 2: Women's Perspectives on the Engineering Classroom
- Workshop 3: Course Planning to Improve Your Classroom Climate

### OUTREACH PROGRAMS...

#### 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 the Iowa Commission on the Status of Women and The Iowa Department of Education on a statewide essay contest about historical woman in STEM, day-long experiences for Girl Scouts and Brownies, sponsoring awards for Outstanding Essay Entries related to Women in Science and Engineering for the National History Day in Iowa Event, the Outdoor Journey for Girls Program, NW Iowa Extension Technology Team – Robotix train the trainer program

facilitated by our Student Role Models, WINGS Career Conference in NW Iowa, an introduction to Project Lead the Way instructors on gender and diversity issues related to women in STEM, and communicating program information/opportunities with new and current science teachers in Iowa as part of a Department of Energy summer workshop program coordinated by Adah Lashem-Ackerman.



*Hands-on Activities with Robotics Camp*

### **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 FY07. The conference format includes a scientist or engineer offering a keynote demonstration; career exploration workshops led by women working in science, engineering, and other technical fields; tours of ISU labs and facilities; and special sessions for parents and educators. This year 2398 students and 317 parents/educators registered for the conference. This brings the total number of participants, since program inception, to 41,322.

### **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 ISU 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 68 schools during the 2006-2007 year and reached

approximately 4000 students (including 1977 female and 672 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 ISU student role models. One comment from a teacher who had role models in her classroom this year, "Thanks a million for this wonderful opportunity for students to have fun learning about science and meeting such great ISU role models."

### **RECRUITMENT ACTIVITIES**

PWSE collaborates with the Office of Admissions to meet with prospective ISU students when they visit campus. This has resulted in a steady stream of visitors through the PWSE offices. Staff met one-on-one or in small groups with 152 prospective students and 184 family members during the 2006-07 year.

## **BRIDGE PROGRAMS...**

### **GIRLINKS@IASTATE MENTORING**

GirLinks is an online mentoring program that matches 9<sup>th</sup>-12<sup>th</sup> grade females interested in science, technology, engineering, and math to ISU undergraduate students majoring in similar fields. Communicating via email 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 2006-2007, 46 students (23 high school and 23 undergraduate students) fully completed the requirements at the end of the year. 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 57 students

from across the country to “try on campus.”

During the 2007 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 ISU activities like broomball and glass-blowing.

Through community-building, Getaway hopes to recruit students to prospective students to ISU 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, Reiman Gardens, and the Weitz Company.



*WiSE Getaway participants and hosts enjoying ISU tradition of broomball.*

## **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 2006-07. This is a targeted program for women in Information Technology (IT) degree programs at ISU. Five women enrolled in Computer Science, Computer Engineering and Management Information Systems 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, MN and at an ethanol facility in Blair, NE.. 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 FY07, 24 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 \$345,015 since program inception.

#### **2006-07 Award Recipients**

##### **PWSE First-Year Scholarships**

Kristin Crawford  
Alivia Dieken  
Kimberley Brown  
Leanne Canessa  
Caitlin Krause  
Allison HANNen  
Elizabeth Staloch

##### **Sylvia Stoesser First-Year Scholarships**

Samantha Eischeid

##### **Ada Hayden PWSE Scholarships**

Jennifer Flagg  
Valerie Presher  
Katie Lutz

Jennifer Bittner  
Jessica Tekippe  
Meghan Trimble  
Heidi Van Boening  
Ana Valdez  
Stephanie Golding  
Kelsey Lenaghan  
Nicole Lauzon  
Danielle Abbott  
Korin Reid  
Whitney Rock

**Laurel Ann Crowe Scholarship**

Cassiana Cope

**Charles T. Wright, Jr. Scholarships**

Katie Glass

**Cargill IT Connections Scholars**

Tabitha Johnson  
Sarah Chapman  
Ilana Mangina  
Kristina Gervais  
Khushboo Shakaya

**WISE LEARNING COMMUNITIES**

The Women in Science and Engineering (WiSE) Learning Communities are a living and learning opportunity for first-year and transfer women in science and engineering. The option, offered in conjunction with the ISU Department of Residence, places its participants on residence hall floors and apartments with other undergraduate women in science and engineering programs of study. Since its beginning in FY96, the WiSE program has grown from 52 women to 209 first year and transfer students living in ten residence hall communities across the campus. (See appendix for detailed information on WiSE students and their majors.) Because of strong interest among potential students, the Department of Residence continues to provide additional spaces to meet student demand.

Begun in the fall of 2005-06, the WiSE Learning Community expanded to include transfer students. In 2006-07, the 10-member WiSE Transfer learning team's residential component was group living in the Frederiksen Court Apartments, and 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.

The program has been very successful in meeting the needs of first year and transfer students. A summary of the formal programs that were offered through the WiSE Living Option during 2006-2007 is available in the appendix.



*WiSE Learning Community students team building exercise at fall orientation.*

**LEARNING TEAMS**

In the fall of 2006, WiSE sponsored seven learning teams for over 132 students within the overall WiSE Learning Community. The teams include:

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

Members of learning teams live in the same halls and take two, three or four courses together. They are supported by peer mentors (upper-class students with similar academic interests) with whom they meet regularly to discuss their coursework.

*(continued next page)*

Feedback from students indicated that their first-year experience was very positive and, according to the 2006-07 WiSE Learning

Community Survey, 87% of respondents reported having a “positive” or “very positive” overall experience at ISU.

WiSE Learning Community students when asked about their “greatest success or positive academic experience fall semester” responded with the following themes:

- Grades/academic success (good GPA’s and making the Dean’s List)
- Confidently making curricular decisions (selecting a major or concentration)
- Meeting other WiSE students and serving as a support network
- Knowing that they needed to get help with problems and where to go
- Getting involved at Iowa State
- Time management
- Meeting a variety of people
- Learning how to study (in groups and otherwise)
- Living together with other focused students that encouraged good grades

According to our WiSE LC Survey 77 % of our learning community students who responded were engaged in some form of group study (Supplemental Instruction, tutoring, or informal/formal study groups) for at least 3 hours per week.

88.5% of the students who responded to the WiSE Learning Community Survey indicated that they were involved at ISU beyond their WiSE Learning Community (WiSE Student Organization, departmental club, residence or other student-run organizations).

Overall the open-ended responses from learning community students show a strong sense of personal achievement of goals – whether it be through leadership, academic or social experiences or balancing all of them!

- *“The most satisfying aspect of the learning community was living together with other engineering majors. There were always people that I could ask for help not just about homework but any problems we were having at all.”*
- *“I love the course clusters! I think they encouraged good grades and a strong work ethic.”*
- *“Interacting with other women with similar majors has helped me to build my*

*confidence. It has given me more opportunities to enhance my leadership skills. It has also helped me with my time and stress management skills.”*

- *“WiSE helped me to cement my major and feel supported in a field where I felt underestimated.”*



*WiSE Gold Team Members made Gingerbread houses last year before winter break!*

## **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 WISE students and peer mentors were able to participate in the Cargill Leadership Retreat in February 2007. This retreat provided opportunities for participants to learn about different leadership styles and gain tools to assist them in leadership positions in the future.

Comments from participants:

- *“I got more out of the Cargill Leadership Retreat that I ever expected. I definitely met a lot of girls and learned a lot about myself. I learned that I don’t have to be afraid to take a leadership role because I am capable of doing it.”*

- “The WiSE Cargill Leadership Retreat made me realize my potential to make a difference.”
- “I learned more about myself and how I can become a good leader. I have a better attitude towards volunteering and being a leader within WiSE.”
- “I learned how to start networking and how to combat my weaknesses. Learning about leadership opportunities after graduation from the Cargill speaker was also really good.”

## 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, 44 ISU students participated in the on-line MentorNet community. MentorNet is a national on-line community and mentoring program for women in engineering and science fields. Although those that participated in MentorNet had positive comments, the number of participants has been dropping in recent years. Investigation into continuing this program will be conducted in the coming year. The MentorNet membership fee of \$3000 was shared by the College of Engineering and PWSE.

## SOPHOMORE YEAR PROGRAMMING

Through support from Alcoa, PWSE spent time conducting focus groups, reviewing literature, and attending conferences and seminars, in an effort to develop additional programming to support women in their second-year in STEM fields. Through this effort staff became involved with university efforts to initiate more learning communities to support second-year

students. In addition, PWSE was involved with making presentations at the local and national level on the challenges second-year students face and ways in which women in STEM are in need of support. In the fall of 2007, PWSE will offer a series of workshops, a new learning community with a seminar and targeting tutoring in order to better meet the needs of second-year students.

## 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 ISU 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 ISU colleges and other administrative units and from faculty grants.

During summer 2007, 32 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 974 students.



*PWSE mentor Felicitas Avendano(L) with intern Nathalie Sanyour at poster session.*

## PWSE OPERATIONS...

### ADVISORY BOARD

The PWSE Advisory Board held two meetings during the 2006-07 year. The Advisory Board focused on the following items during the year:

- 20<sup>th</sup> Anniversary event planning
- Selection of award recipients for the 20<sup>th</sup> anniversary celebration

- Subcommittee work on outreach and strategic planning
- Input into the strategic planning process, including identification of program strengths, weaknesses, opportunities and environmental scans of issues affecting PWSE ability to achieve its mission.

Officers of the board this year were Linda Powell (Guthrie Center Schools) - president, and Janine Keeley (Emerson Process Management – Fisher Controls) - president-elect, and Carol Hendrick (Pioneer) – past-president. A listing of board members for the 2006-07 year is included in the appendix.

### **FINANCIAL REPORT**

Through the support of the ISU Foundation, the Program for Women in Science and Engineering was able to raise \$82,383 in external gift and grant funding during the 2006-07 fiscal year. In addition, PWSE received \$37,000 from the Greater University Fund for Excellence (an ISU Foundation under the control of the university president). A list of corporate donors is provided in the appendix.

In addition to external gifts, PWSE internal reallocations and funding from the ISU Learning Communities, the College of Engineering, and the College of Agriculture. Learning communities provided funding for peer mentors and programming for the WISE Learning communities. The College of Engineering provided funding for MentorNet and the Summer Intern program. They also provide funds that PWSE administers, to provide tutoring support for engineering women not in the WISE learning communities. The College of Engineering also served as the lead and provided funding towards the P&S grant for the classroom climate workshops for faculty/staff in engineering. The College of Agriculture provided matching funding for the Summer Intern program.

PWSE also continued to receive financial support and the commitment of time from researchers across campus for the Summer Intern program. Faculty research grant funding provided over half of the stipend support this

past summer. Detailed financial information is included in the appendix material.

### **PWSE INVOLVEMENT ON CAMPUS**

PWSE staff members are an integral part of the ISU campus, collaborating with others and serving in leadership roles. By being engaged with the broader university, PWSE staff members are able to more fully engage the campus in the mission of PWSE and also identify potential partners for new initiatives.

The following is a sampling of the ways PWSE staff was engaged with the broader ISU community during the 2006-07 academic year:

- Membership on Learning Community Advisory Committee
- Actively involved in Women’s Leadership Consortium and the University Committee on Women
- Leadership of the Sophomore Year Learning Community/Retention group
- Member on Learning Community committees within the Colleges of Engineering and Agriculture
- Partnering with other summer research programs to offer joint activities
- Providing support letters or provided information for 17 research grants submitted by faculty members in STEM disciplines
- Organizing contact information for ISU outreach programming in preparation for increasing networking and collaboration among outreach programs.

## A LOOK TO THE FUTURE...

During the 20<sup>th</sup> Anniversary Celebrations this past year, we spent time reflecting on accomplishments of the program. PWSE has made a difference in the lives of thousands of young women over its history. Those who have been associated with the programs as staff, volunteers, students, or donors truly have much to celebrate.

However, as much as we celebrated the success of the program, the 20<sup>th</sup> anniversary also gave us pause to reflect on where we want to be in future. PWSE has established successful programs that are in demand. We continue to fill all our learning community spaces and career conferences are usually at capacity. However, even though we are offering programs that are filling needs, we still have degree programs in the sciences and engineering that enroll less than 10% women, and the average across all STEM disciplines has been fairly stable at 30% for the past several years. So even though PWSE is 'doing good things', we need to figure out how to have a greater impact on increasing the representation of women in STEM.

Recognizing this issue, the PWSE staff and Advisory Board have embarked on a strategic planning process that will guide PWSE efforts over the next five years. The strategic plan will

be a major focus of the fall 2007 PWSE Advisory Board meeting. Even though the plan is in the development stage, some themes have surfaced. For example, PWSE truly values collaboration with others in advancing the issues of women in STEM fields. It is through these partnerships that PWSE will be able to serve more students and have a larger impact on the issues affecting women in STEM fields. Therefore, enhancing existing partnerships and engaging new partners will be a significant component of the new strategic plan.

The goal of the strategic planning process is to guide staff on where to invest time and resources as they work to meet the program mission. The result of the process is a strategic plan document that will guide program development efforts. However, the process of developing the plan is equally as important as the plan. The discussions related to program strengths, alternative directions to pursue, and prioritization of what to include in the plan are what ultimately establish the direction of PWSE for the next five years.

The PWSE staff members are excited to finalize the plan and begin to implement the strategies to address the plan goals. Once approved, the entire strategic plan will be available on the PWSE website.



*Undergrads at PWSE Football Tailgate*



*Elementary youth at wind tunnel demo*

## PROGRESS ON OBJECTIVES

In support of the mission, PWSE has several key objectives that are used as benchmarks for measuring the success of the program. For each objective, PWSE has identified strategies to assist in reaching those objectives.

### **Objective 1) Increase the number and diversity of women pursuing STEM degrees.**

Strategy A. Offer programs to stimulate interest among K-12 girls.

- Girl Scouts/Brownies – 57 girls and 14 parents reached (BEST cancelled this year due to inclement weather).
- Career Conferences – 2712 participants registered
- Student role models – 68 visits, 3851 students reached (1977 female, 672 minority)
- WiSE Getaway – 57 high school seniors attended the two-day program for students who had been offered admission to Iowa State. 51 students accepted their offer of admission for fall 2007, and of those, 18 were from Minnesota, Illinois, Wisconsin, Missouri, South Dakota, Florida, Connecticut, Kansas or Nebraska
- Statewide essay contest for 6-9 grade students about a female in history who was involved in science or engineering. Collaborate with Iowa Commission on the Status of Women and the University of Iowa WiSE Program
- GirLinks — 27 high school and 31 undergraduate students participated in the e-mentoring program for women in STEM fields

Strategy B. Develop partnerships and leverage efforts of others with similar goals.

- Girl Scouts, 4-H and AAUW program participation
- PWSE involved with programs hosted by two community colleges in the state
- Iowa Commission on the Status of Women and University of Iowa WiSE
- State of Iowa and National Historical Society
- ISU Extension 4-H Program and Youth Field Specialists
- NW Iowa Technology Team
- Partner with College of Engineering – MentorNet and the faculty development series
- Office of Admissions (visits, funding for Getaway guests, involvement in TRLT career conference)
- Student organizations: SWE, WiSE, and ASK
- Partner with faculty across campus on grants/proposals related to enhanced learning/research opportunities for women, including providing information or letters of support for 17 different research grants

Strategy C. Provide role models and connections between K-12 girls and women studying or practicing STEM careers.

- Student role model program
- Career conference presenters
- Professional role model database
- The Cargill IT Connections Scholars program linked undergraduates in IT fields with both 6-12 grade girls and with professional women in IT.
- Girlinks – 31 undergraduate women in science and engineering served as mentors to high school students
- Getaway – 56 undergraduates served as hosts to 57 high school seniors interested in attending Iowa State in STEM majors

Strategy D. Expand efforts to be more inclusive of a diverse population of women.

- Several women of differing racial and ethnic backgrounds serving as Student Role Models
- Proactively try to attract diverse women as presenters at career conferences
- Deaf presenter at the Taking the Road Less Traveled Career Conference
- Translated career conference registration materials into Spanish, to allow parents of immigrant families the opportunity to be informed of the program
- Sought external funding to be able to offer ‘scholarships’ to the career conferences for students on free and reduced lunch
- Student role model program targeted visits to communities with diverse populations

Strategy E. Utilize technology to reach students, teachers, and parents across Iowa.

- Maintain an e-mail listing of parent/teacher contacts that exceeds 4000 names
- Girlinks used email to introduce and connect high school seniors with undergraduate women in STEM majors
- Offered Student Role Model Visits over the Iowa Communications Network – to reach students in far corners of the state.

Strategy F. Revive interactions with community colleges and other feeder institutions.

- Collaborated on Student Role Model visits with Northeast Iowa and Northwest Iowa Community Colleges
- Participated in WINGS career conference for 250 8<sup>th</sup> grade girls, partnering with Western Iowa Tech, Morningside College, and Briar Cliff College.
- Director of PWSE is member of the Department of Education, Educational Leadership Team for Equity that is composed of representatives from every community college in Iowa
- Implemented a learning community for transfer students
- Outreach Coordinator making visits and talking with individuals at each community college in Iowa.

## **Objective 2) Increase the number and diversity of women graduating in STEM fields.**

Strategy A. Continue to expand learning community experiences.

- Addition of a WiSE Second Year Success Learning Community for fall 2007
- An increase of 20 students participating in WiSE course clusters (132 from 112 in fall 2005)
- Transfer learning community for 10 students
- 31% of incoming first-year women in STEM fields are connected to WiSE Learning Communities

Strategy B. Offer programs to encourage academic success and professional development.

- Resume Writing Seminar
- Attend Fall Career Fairs with peer mentors/learning teams
- Study Groups
- Supplemental Instruction
- Tutoring Services
- Etiquette Dinner
- Leadership Panel
- Faculty Luncheons
- 2-day Leadership Retreat sponsored by Cargill
- Cargill Site Visits in Nebraska and Minnesota

Strategy C. Collaborate with other programs and offices to provide multiple opportunities for women to connect with ISU and their STEM professions.

- Partnering with Leadership ISU, Carrie Chapman Catt Center, and Learning Communities program in development of sophomore and leadership experiences.
- Partnerships with student organizations, Student Organization Councils in the College of Engineering and College of Agriculture, LEAD/CPRE Learning communities, etc.

- Partner with Student Services Programs like the Academic Success Center, Supplemental Instruction, Career Exploration, Student Activities Center, etc.

Strategy D. Establish supportive networking opportunities for women, to break down the isolation factors.

- E-WiSE – weekly email to female STEM students
- Student organization support
- Virtual Reality Tours
- Etiquette Dinner
- Broomball
- Parents' Weekend Breakfast
- Holiday crafts
- Campanile Tours
- Climbing Wall
- Study Bags/Notes (Fall and Spring)
- MU Bowling
- Reiman Gardens Tour
- Ice Cream Social
- Health Stress/Relaxation Seminar
- Self Defense Seminar
- Coffee with Coordinator
- Hickory Park Ice Cream
- ISU Volleyball and Basketball Games
- ISU Tent Row Tailgate
- Plant Tour of General Mills and interaction with women in leadership roles
- 2-day Leadership Retreat sponsored by Cargill
- Night out to Goreville
- Resume Writing Seminar
- Interactions with professional women – through panels, e-mentoring, seminars, etc.
- Potluck Dinners
- Camping at Ledges State Park
- WiSE Common Reading Program

**Objective 3) Provide academic programming to support the educational success of female STEM students.**

Strategy A. Facilitate study groups and peer tutoring within learning communities.

- All PWSE sections tied to Supplemental Instruction offered by university
- Seminars on study/test taking, time management, health stress/relaxation, getting involved on campus, resumes, etc.

Strategy B. Offer group study sessions in key entry-level courses

- Sessions offered fall semester: Chemistry 177 and 331; Math 165 and 166;
- Sessions offered spring semester: Chemistry 178; Math 166 and 265
- Attendance at sessions ranged from 5 to 25 students.

Strategy C. Encourage students to take advantage of support services available.

- E-WiSE
- Supplemental Instruction
- Career Services
- Study Abroad
- Tutoring through Student Services
- Academic Intervention Workshops

Strategy D. Manage individual and small group tutoring for women in the College of Engineering

- Over 50 students served
- College of Engineering provides funding for this initiative; PWSE manages it.

#### **Objective 4) Facilitate the development of leadership and career enhancing skills.**

Strategy A. Offer seminars, plant trips, and other opportunities for students to experience STEM careers. For example, Cargill sponsored leadership retreat and plant trips. (Specific programs listed in items 2B above.)

Strategy B. Provide leadership development opportunities through student organization, peer mentor, and role model positions.

- 230 students in WiSE student organization
- 28 student role models and 1 assistant
- 2-day leadership retreat for 60 students
- 10 peer mentors
- Career conference assistant/student employee
- Involvement of student organization and learning community members in career conference events
- Involvement of 12 STEM students in hosting Girl Scout and Brownie events
- Involving STEM students in volunteer activities – judging science fair, service learning projects, etc.

Strategy C. Develop student communication and technical skills through student participation in outreach programs.

- Summer intern – writing technical research paper and preparing poster presentation
- Role models – developing oral skills through presentations, leading small groups, large groups, and multiple locations on the ICN
- Student led service learning – e.g. developing curricula/materials for several elementary classes and welcoming programs for new transfer students

#### **Objective 5) Facilitate mentoring and networking opportunities.**

Strategy A. Provide opportunities for undergraduate STEM women to interact with other women (undergraduates, faculty, and professionals). See list of activities on Objective 2 part d.

Strategy B. Arrange mentoring opportunities for women undergraduates (both as mentors and mentees).

- GirLinks – 31 undergraduates participated (see 1A and 1C for more details)
- MentorNet – 44 ISU students participated in the on-line community during 2006-07
- Peer Mentors – 10 peer mentors
- Getaway – 56 undergraduates participated as hosts or co-hosts
- Summer Intern program – 32 undergraduate students during summer 2007
- Girl Scout events – 12 undergraduate volunteers with approximately 57 youth
- Student Role Models – 28 different role models working with students across the state

#### **Objective 6) Provide career exploration opportunities to young women statewide.**

Strategy A. Offer programming on ISU campus to allow young women to explore non-traditional careers in STEM.

- Career Conference and Girl Scout activities (see details in number 1A above)
- Provide outreach programming for women across the state through both student and professional role models
- Role model visits
- Girlinks
- Getaway

Strategy B. Utilize technology (websites, etc.) to share information.

- E-mail – electronic weekly newsletter
- Website
- GirLinks electronic mentoring
- Offer ICN programming

Strategy C. Partner with other organizations to reach a wider range of students (geographically and demographically).

- Extension and 4-H
- American Association of University Women
- Northwest Iowa and Northeast Iowa Community Colleges
- WiSE student organization – GirLinks 27, Science Explorations 60 and Getaway 56 – high school through elementary students reached

Strategy D. Develop a plan for providing opportunities for a larger number of students (beyond career conferences, role models, and interns).

**Objective 7) Provide financial assistance to women students through scholarships, employment, and internships.**

Strategy A. Collaborate with colleges to leverage PWSE designated scholarship money effectively.

- \$29,200 to students

Strategy B. Utilize STEM students in paid positions to support programming efforts

- 10 Peer Mentors
- 28 Role Models
- Role Model and career conference assistants
- GirLinks and website assistant
- Office staff

Strategy C. Actively recruit faculty mentors and funding sources for undergraduate intern programs.

- Eight new mentors during summer 2007
  - Provided letters of support and/or information for 17 different grants written by faculty/staff from across campus. The majority of these grants were to the National Science Foundation.

**Objective 8) Facilitate the involvement of women students within the larger academic community.**

Strategy A. Collaborate with colleges and student organizations to link female STEM students with the broader ISU/Ames community.

- SWE, WiSE, ASK
- College of Engineering and Agriculture Councils
- E-WiSE announcements
- Service Learning Projects

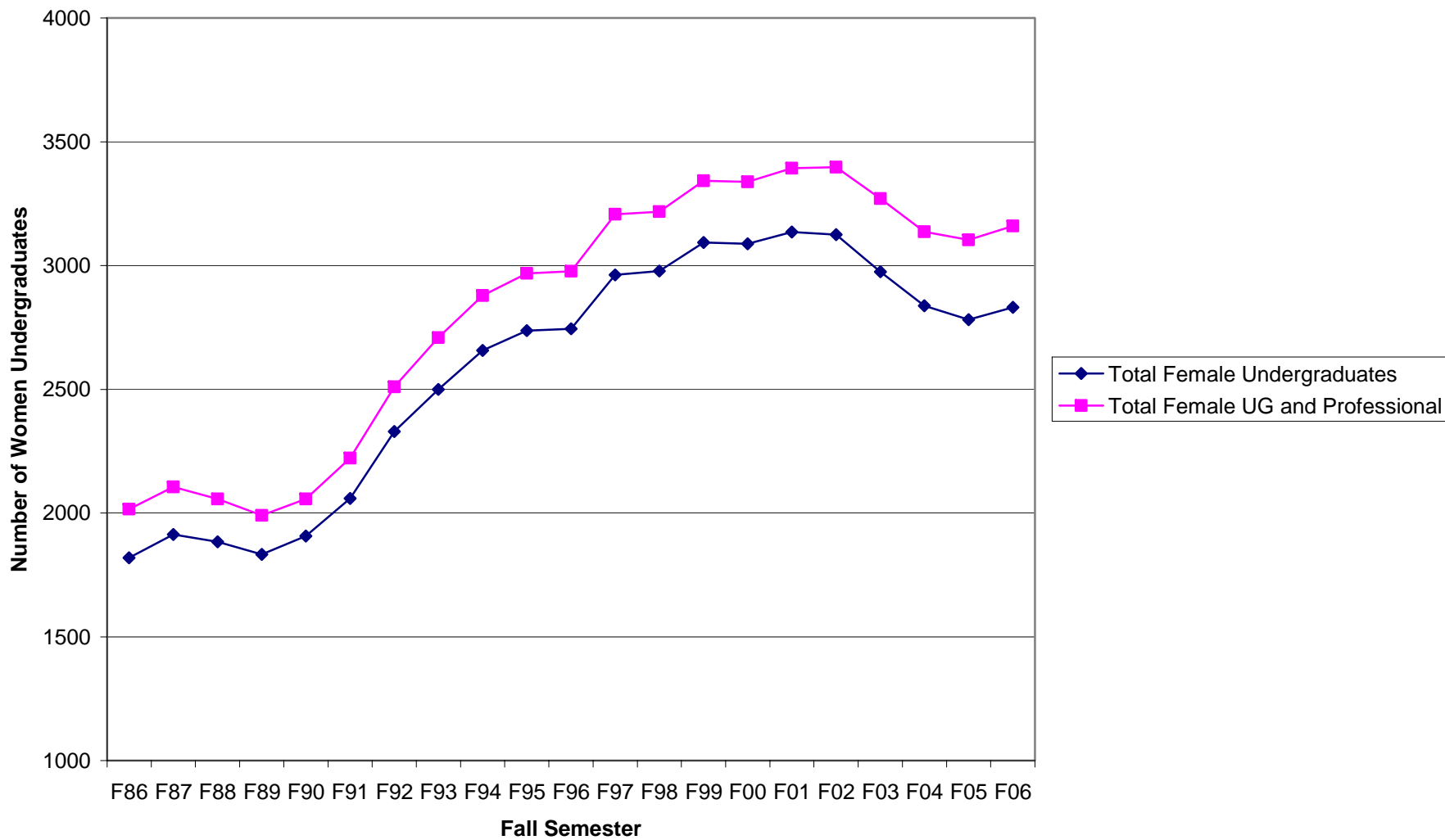
Strategy B. Provide programming and services to connect students with departments/programs outside of PWSE.

- E-WiSE notice of other activities, clubs, etc.
- Joint sponsorship of various programs on campus (ISCORE, etc.)
- Collaborations with other summer research programs on campus – connecting our students to other students and research seminars, etc.
- 88.5% of the students who responded to the WiSE Learning Community Survey indicated that they were involved at ISU beyond their WiSE Learning Community (WiSE Student Organization, departmental club, residence or other student governed organization)

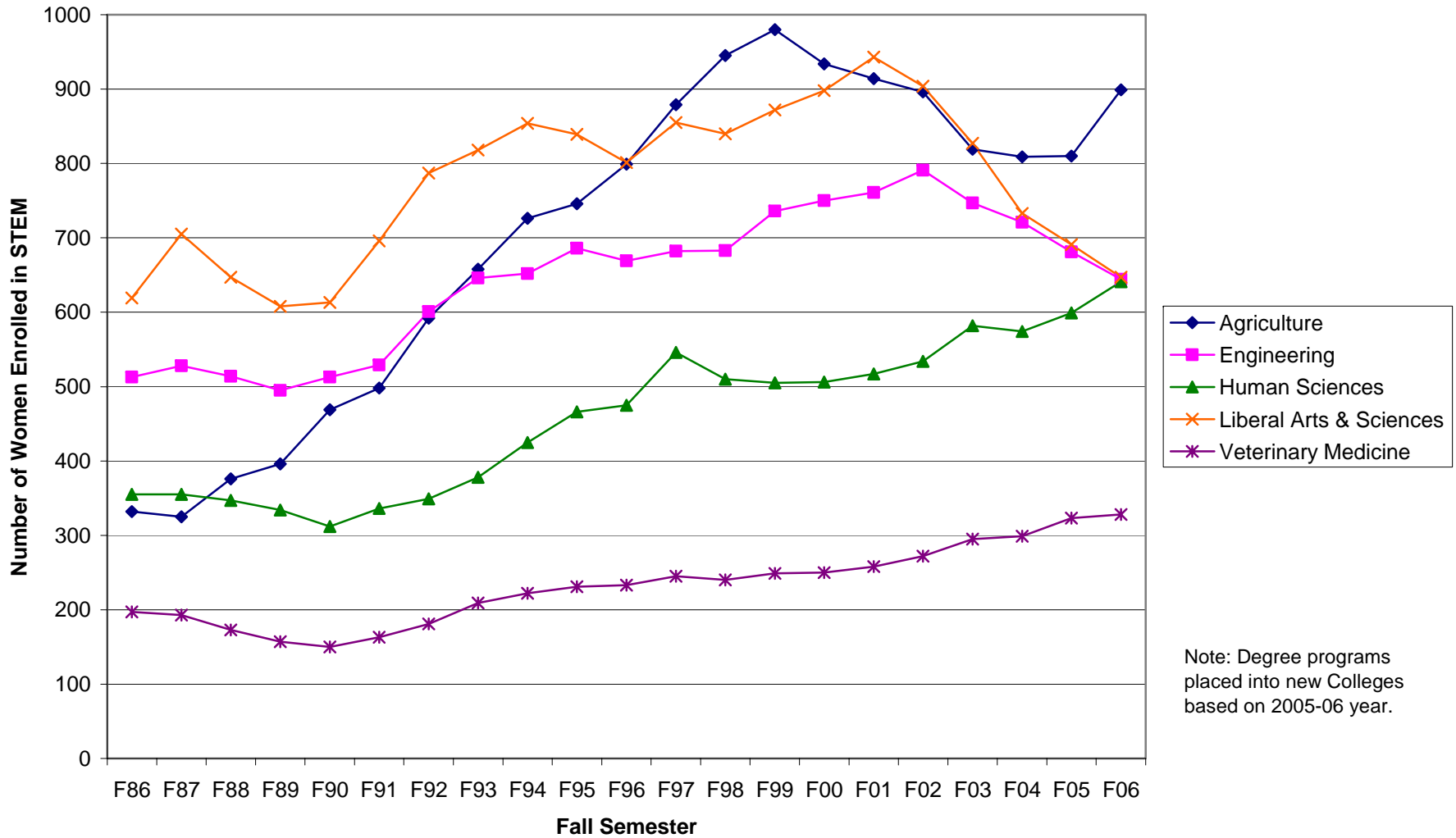
**Enrollment of ISU Undergraduate & Professional Women in Science, Technology, Engineering or Math (STEM) Degree Programs**

<b># of Females in STEM majors</b>	F86	F90	F95	F00	F01	F02	F03	F04	F05	F06
Agriculture	332	469	746	934	914	896	819	809	810	899
Engineering	513	513	686	750	761	791	747	721	681	644
Human Sciences	355	312	466	506	517	534	582	574	599	641
Liberal Arts & Sciences	619	613	839	898	943	904	827	733	691	647
<b>Total Female Undergraduates</b>	<b>1819</b>	<b>1907</b>	<b>2737</b>	<b>3088</b>	<b>3135</b>	<b>3125</b>	<b>2975</b>	<b>2837</b>	<b>2781</b>	<b>2831</b>
Veterinary Medicine	197	150	231	250	258	272	295	299	323	328
<b>Total UG including Vet Med</b>	<b>2016</b>	<b>2057</b>	<b>2968</b>	<b>3338</b>	<b>3393</b>	<b>3397</b>	<b>3270</b>	<b>3136</b>	<b>3104</b>	<b>3159</b>
<b># of Males in STEM majors</b>										
Agriculture	1110	1250	1315	1172	1199	1384	1150	1088	1083	1251
Engineering	4410	3746	3478	3854	4115	4172	4035	3946	3840	3792
Human Sciences	187	320	285	395	399	415	400	408	346	337
Liberal Arts & Sciences	1135	1004	1062	1237	1254	1211	1181	1032	1013	972
<b>Total Male Undergraduates</b>	<b>6842</b>	<b>6320</b>	<b>6140</b>	<b>6658</b>	<b>6967</b>	<b>7182</b>	<b>6766</b>	<b>6474</b>	<b>6282</b>	<b>6352</b>
Veterinary Medicine	266	163	174	144	142	128	114	109	108	111
<b>Total UG including Vet Med</b>	<b>7108</b>	<b>6483</b>	<b>6314</b>	<b>6802</b>	<b>7109</b>	<b>7310</b>	<b>6880</b>	<b>6583</b>	<b>6390</b>	<b>6463</b>
<b>% of Female in STEM Majors</b>										
Agriculture	23.0%	27.3%	36.2%	44.3%	43.3%	39.3%	41.6%	42.6%	42.8%	41.8%
Engineering	10.4%	12.0%	16.5%	16.3%	15.6%	15.9%	15.6%	15.4%	15.1%	14.5%
Human Sciences	65.5%	49.4%	62.1%	56.2%	56.4%	56.3%	59.3%	58.5%	63.4%	65.5%
Liberal Arts & Sciences	35.3%	37.9%	44.1%	42.1%	42.9%	42.7%	41.2%	41.5%	40.6%	40.0%
<b>Total Female Undergraduates</b>	<b>21.0%</b>	<b>23.2%</b>	<b>30.8%</b>	<b>31.7%</b>	<b>31.0%</b>	<b>30.3%</b>	<b>30.5%</b>	<b>30.5%</b>	<b>30.7%</b>	<b>30.8%</b>
Veterinary Medicine	42.5%	47.9%	57.0%	63.5%	64.5%	68.0%	72.1%	73.3%	74.9%	74.7%
<b>Total UG including Vet Med</b>	<b>22.1%</b>	<b>24.1%</b>	<b>32.0%</b>	<b>32.9%</b>	<b>32.3%</b>	<b>31.7%</b>	<b>32.2%</b>	<b>32.3%</b>	<b>32.7%</b>	<b>32.8%</b>

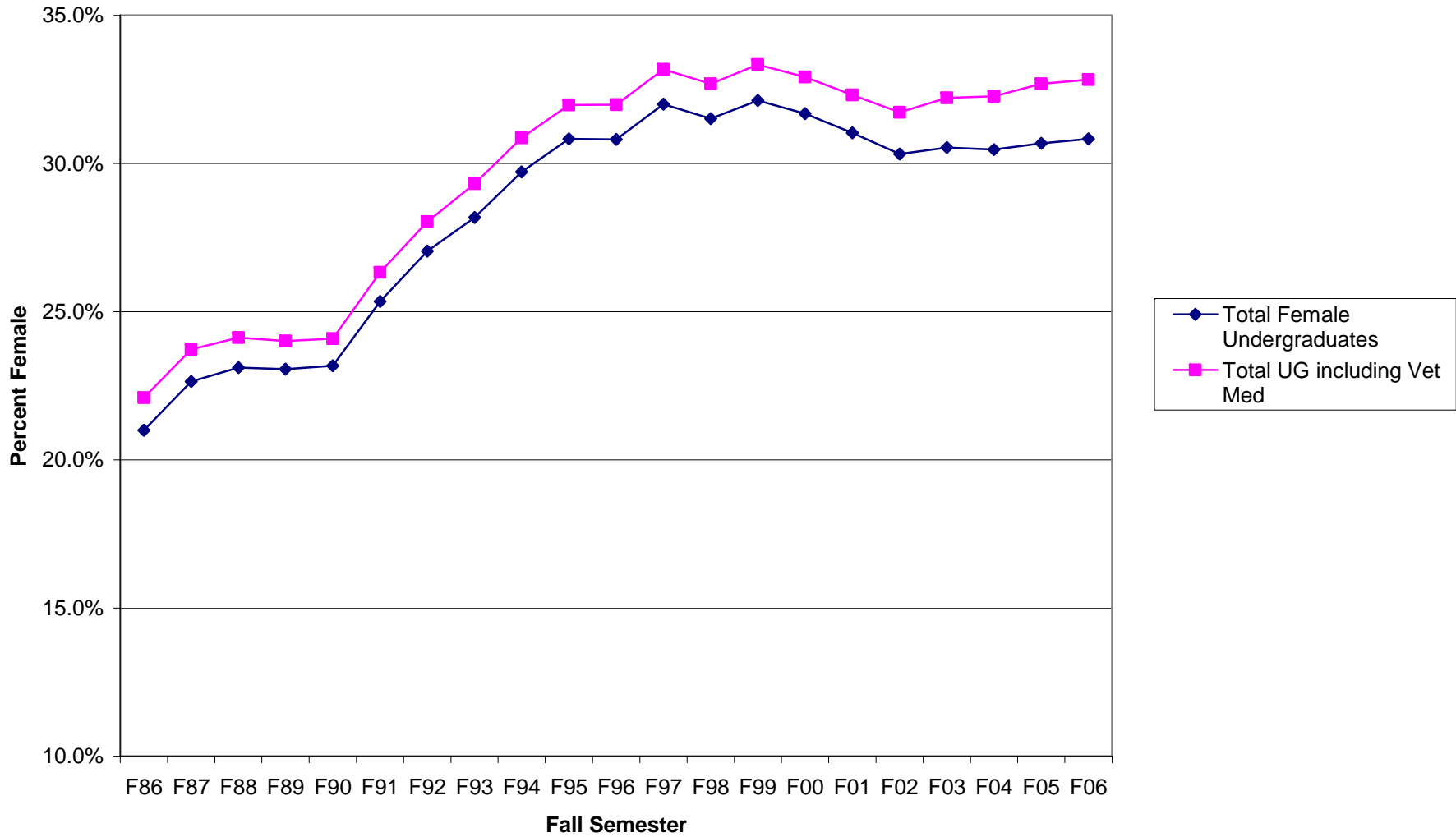
### Total Number of Undergraduate & Professional (Vet Med) Women in STEM Fields Iowa State University



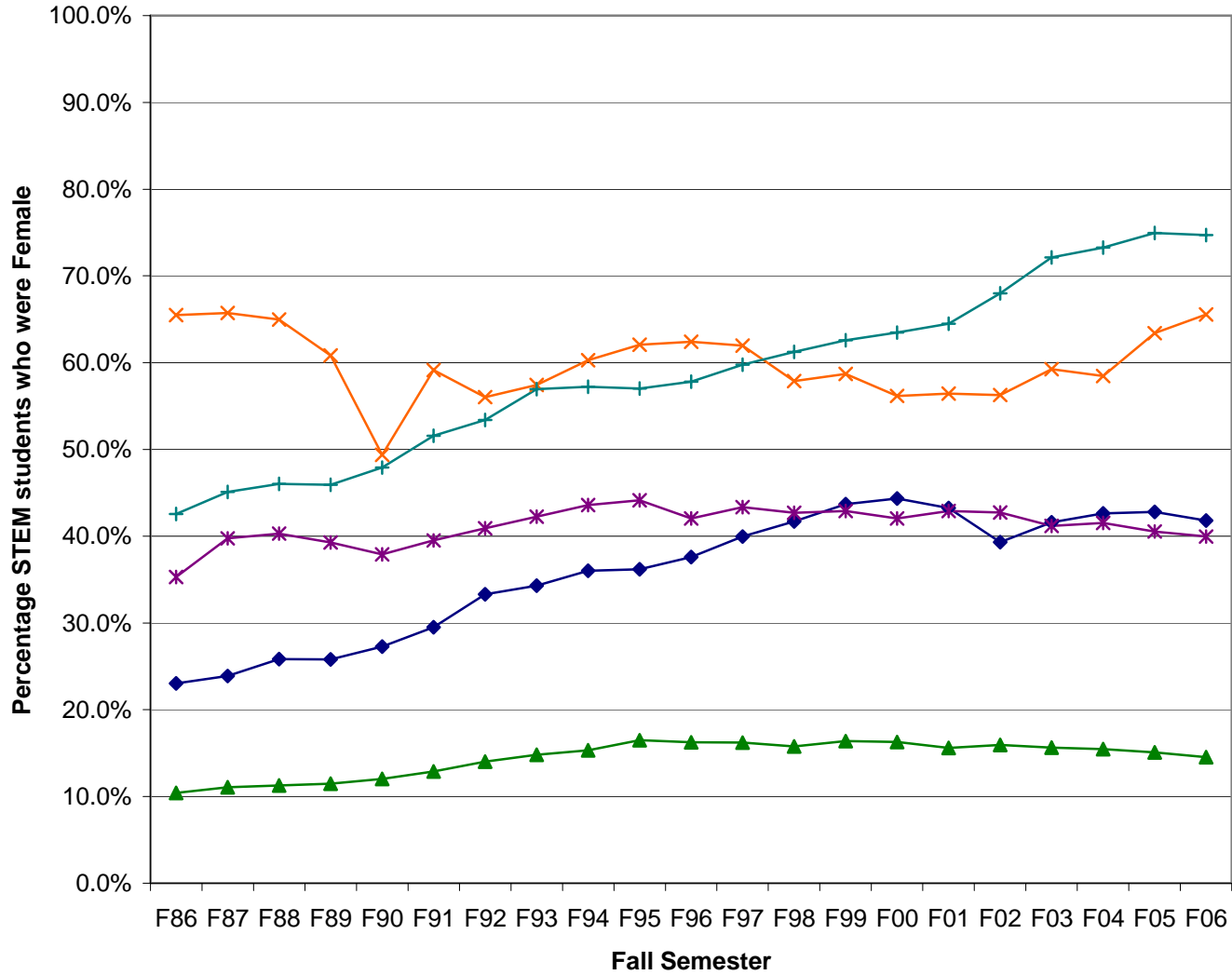
## Number of Undergraduate & Professional (Vet Med) Women in STEM Fields Iowa State University



### Undergraduate & Professional (Vet Med) Enrollment in STEM Fields at Iowa State Percentage Female



## Percentage of Undergraduate & Professional (Vet Med) Women in STEM Fields Iowa State University



Note: Colleges based on new college configuration Fall 2005

**Number of B.S. & Professional Degrees  
Awarded in STEM Fields during Academic Years '96-97 through '05-'06**

Female BS & Prof. Grads in STEM

	AY96-97	AY97-98	AY98-99	AY99-00	AY00-01	AY01-02	AY02-03	AY03-04	AY04-05	AY05-06
Ag	160	173	154	211	186	176	213	205	185	196
Engr	118	125	105	99	117	110	154	144	124	139
HS	92	103	123	106	114	102	108	114	134	136
LAS	95	112	92	108	115	137	146	164	148	128
Vet Med	54	55	51	59	63	63	59	67	64	82
BS Only	465	513	474	524	532	525	621	627	591	599
BS + Prof (Vet Med)	519	568	525	583	595	588	680	694	655	681

Male BS & Prof. Grads in STEM

	AY96-97	AY97-98	AY98-99	AY99-00	AY00-01	AY01-02	AY02-03	AY03-04	AY04-05	AY05-06
Ag	361	328	347	382	350	328	367	303	337	362
Engr	574	567	589	599	574	607	696	662	689	723
HS	47	47	80	66	73	73	73	71	81	100
LAS	168	145	152	197	151	203	185	201	167	181
Vet Med	37	45	43	40	34	35	37	37	29	24
BS Only	1150	1087	1168	1244	1148	1211	1321	1237	1274	1366
BS + Prof (Vet Med)	1187	1132	1211	1284	1182	1246	1358	1274	1303	1390

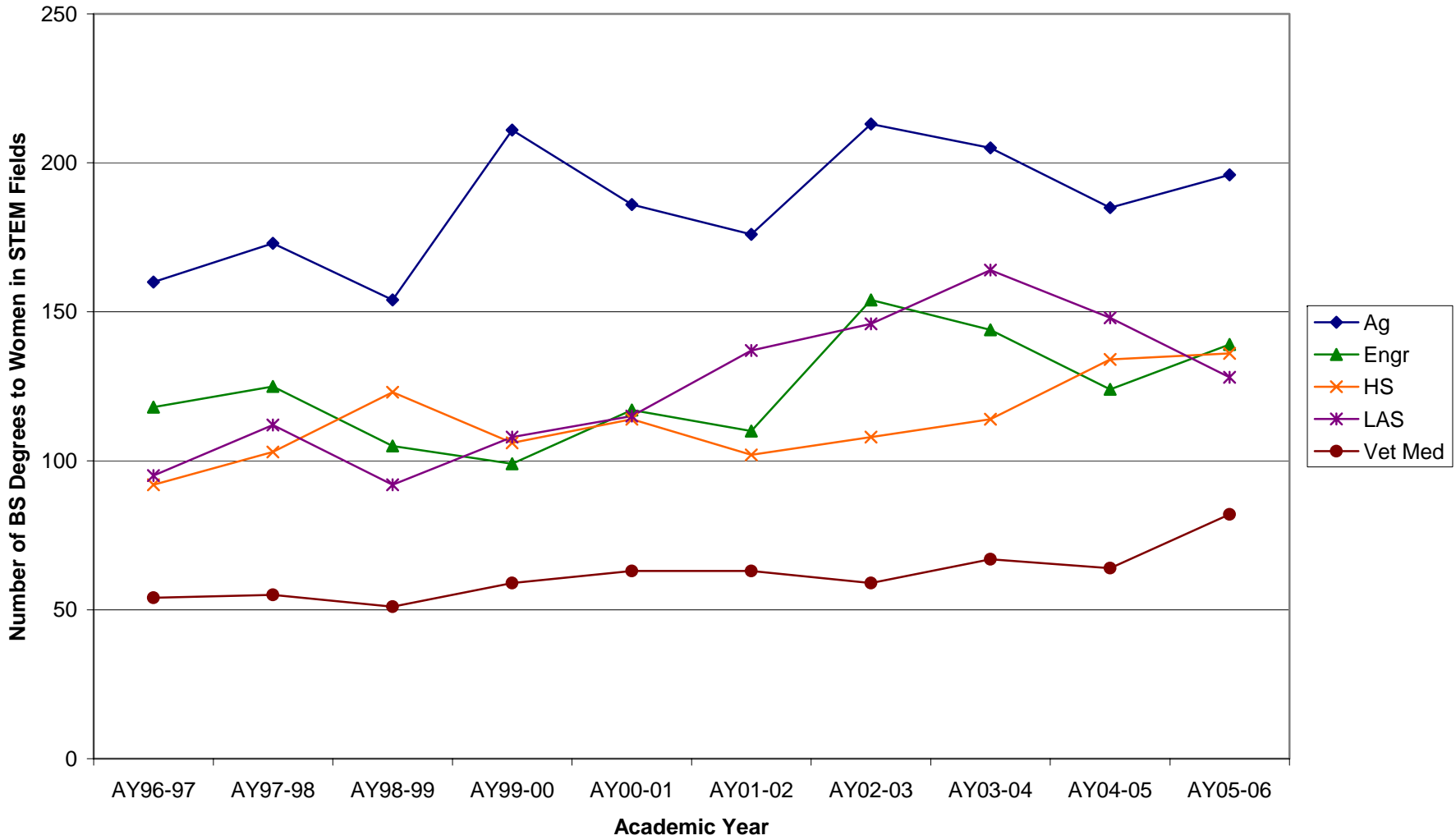
Percent Female BS & Prof. Grads in STEM

	AY96-97	AY97-98	AY98-99	AY99-00	AY00-01	AY01-02	AY02-03	AY03-04	AY04-05	AY05-06
Ag	30.7%	34.5%	30.7%	35.6%	34.7%	34.9%	36.7%	40.4%	35.4%	35.1%
Engr	17.1%	18.1%	15.1%	14.2%	16.9%	15.3%	18.1%	17.9%	15.3%	16.1%
HS	66.2%	68.7%	60.6%	61.6%	61.0%	58.3%	59.7%	61.6%	62.3%	57.6%
LAS	36.1%	43.6%	37.7%	35.4%	43.2%	40.3%	44.1%	44.9%	47.0%	41.4%
Vet Med	59.3%	55.0%	54.3%	59.6%	64.9%	64.3%	61.5%	64.4%	68.8%	77.4%
BS Only	28.8%	32.1%	28.9%	29.6%	31.7%	30.2%	32.0%	33.6%	31.7%	30.5%
BS + Prof (Vet Med)	30.4%	33.4%	30.2%	31.2%	33.5%	32.1%	33.4%	35.3%	33.5%	32.9%

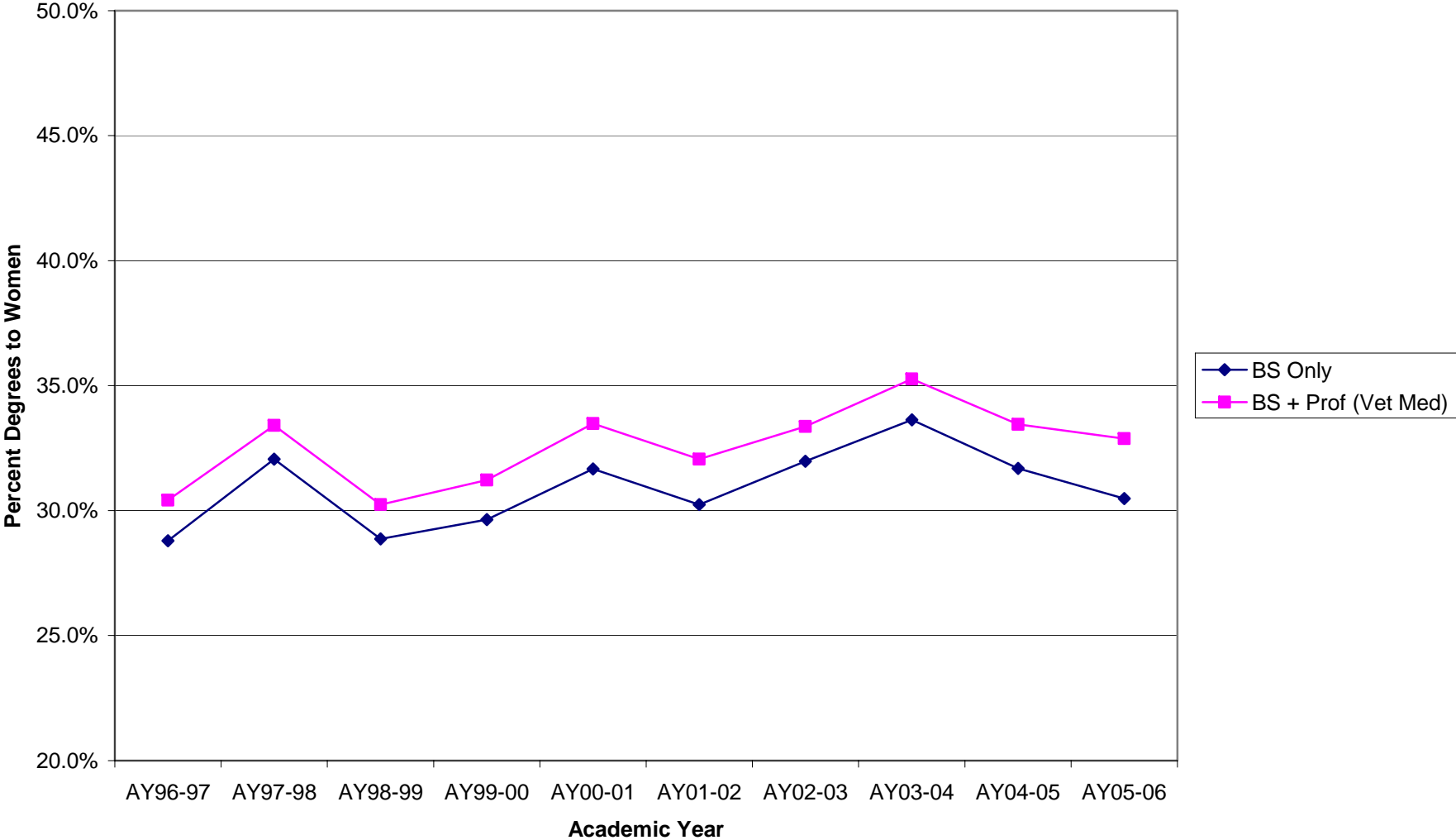
### Total Number of BS & Professional Degrees to Women in STEM Fields Iowa State University



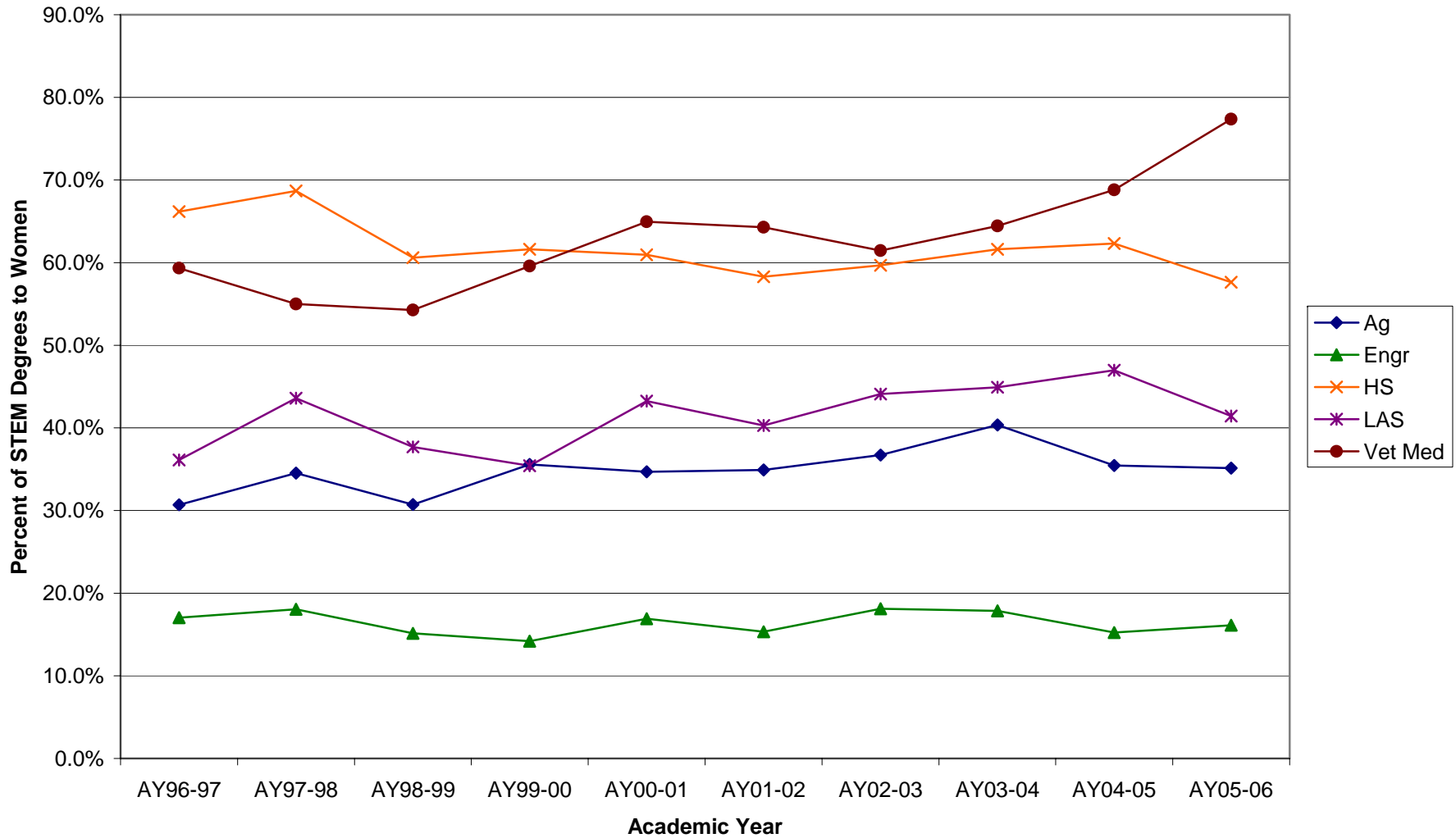
**Number of BS & Professional Degrees Awarded to Women In STEM Fields  
Iowa State University**



**Percent of BS & Professional Degrees to Women in STEM Fields  
Iowa State University**



**Percentage of BS & Professional Degrees Awarded to Women in STEM Fields  
Iowa State University**



## APPENDIX 1: WiSE Living Option & Learning Team Participation 2006-07

(Note: Freshman & Transfer represents students new to ISU)

	Total	Freshman & Transfer	Sophomore	Junior	Senior
<b>COLLEGE OF AGRICULTURE &amp; LIFE SCIENCE</b>					
AGRICULTURAL (UNDECLARED)	2	1	1	0	0
AGRONOMY	2	1	1	0	0
ANIMAL ECOLOGY	3	1	2	0	0
ANIMAL SCIENCE	16	16	0	0	0
ANIMAL SCIENCE (PRE-VET)	1	0	0	0	1
BIOLOGY	6	6	0	0	0
DAIRY SCIENCE (PRE-VET)	1	1	0	0	0
ENVIRONMENTAL SCIENCE	1	1	0	0	0
GENETICS	6	3	3	0	0
GENETICS (PRE-VET)	11	11	0	0	0
HORTICULTURE	2	0	1	1	0
MICROBIOLOGY	3	2	0	1	0
<b>TOTAL</b>	<b>56</b>	<b>43</b>	<b>8</b>	<b>2</b>	<b>1</b>
<b>COLLEGE OF ENGINEERING</b>					
AGRICULTURAL ENGINEERING	1	1	0	0	0
AEROSPACE ENGINEERING	13	8	5	0	0
CIVIL ENGINEERING	18	12	6	0	0
CHEMICAL ENGINEERING	31	24	4	3	0
COMPUTER ENGINEERING	2	1	1	0	0
ELECTRICAL ENGINEERING	5	3	2	0	0
ENGINEERING UNDECLARED	42	40	1	0	1
INDUSTRIAL ENGINEERING	6	4	1	1	0
MECHANICAL ENGINEERING	13	8	3	1	1
MATERIALS ENGINEERING	7	3	3	1	0
<b>TOTAL</b>	<b>138</b>	<b>104</b>	<b>26</b>	<b>6</b>	<b>2</b>
<b>COLLEGE OF HUMAN SCIENCES</b>					
NUTRITIONAL SCIENCE	1	0	1	0	0
HEALTH AND HUMAN PERFORMANCE	9	6	1	2	0
DIETETICS	4	2	2	0	0
<b>TOTAL</b>	<b>14</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>0</b>
<b>COLLEGE OF LIBERAL ARTS AND SCIENCES</b>					
BIOCHEMISTRY	8	2	2	2	2
BIOLOGY	26	18	6	1	1
BIOPHYSICS	2	1	1	0	0
CHEMISTRY	3	3	0	0	0
ENVIRONMENTAL SCIENCE	2	2	0	0	0
GENETICS	6	5	1	0	0
GEOLOGY	1	0	1	0	0
MATHEMATICS	4	2	2	0	0
METEOROLOGY	6	5	1	0	0
OPEN OPTION	1	1	0	0	0
PRE-COMPUTER SCIENCE	1	1	0	0	0
PRE-PROFESSIONAL HEALTH PROGRAMS	5	4	1	0	0
PREPARATION FOR HUMAN MEDICINE	3	3	0	0	0
PRE-BIOLOGICAL/PRE-MEDICAL ILLUSTRATION	4	4	0	0	0
BIOLOGICAL/PRE-MEDICAL ILLUSTRATION	1	0	0	1	0
PHYSICS	1	0	0	0	1
STATISTICS	1	1	0	0	0
<b>TOTAL</b>	<b>75</b>	<b>54</b>	<b>15</b>	<b>4</b>	<b>4</b>
<b>OVERALL PARTICIPATION</b>	<b>283</b>	<b>209</b>	<b>53</b>	<b>14</b>	<b>7</b>

## APPENDIX 2: WiSE Living Option 2006-07 Programming

Activity	Number Served
<b>FALL SEMESTER</b>	
First Year Orientation	170
Second Year Welcome Back Kick Off	25
Tailgate	120
Study Sessions	95
WiSE Leadership Panel	29
Team Lunches	20
Team Meetings	180
Movie Night	16
WiSE Family Brunch	30 + parents
Coffee with Coordinator	14
Pizza Parties, Out to Eat, Cooking	83
Pumpkin Painting Parties	40
Cargill Career Fair Presentation	40
Game Night	28
WiSE Wars	15
Recreation	18
Bowling	16
Ice Cream Social	73
PWSE Key Chain Goody Bags	160
Tornado Simulator and Wind Tunnel Tour	10
Camping	30
WiSE Student Organization Kickoff	50
Tye Dye	40
Haunted House	62
Thanksgiving Potluck	25
HapKiDo Self-Defense Seminar	15
Cookie Social	11
Smoothie Night	33
Valentine's Day Craft	7
C-4 Virtual Reality Tour	10
"Beat Iowa" Craft Night	11
<b>SPRING SEMESTER</b>	
Study Session	63
Recreation	24
Movie Night	17
Welcome Back Meeting	14
Coffee with Coordinator	19
Leadership Retreat	60
Game Night	9
Pizza Party, Out to Eat, Cooking, Lunches	65
Ice Cream Social	20
Craft Night	5
VEISHEA Parade	15
Service Learning Projects	35
Pottery Painting	20
Tye-Dye	23
Holiday Parties	29
Service Learning Projects	25
ISU Women's Basketball-PWSE 20 <sup>th</sup> Anniversary	21
Etiquette Dinner	60

## **APPENDIX 3: PWSE Donors**

We would like to thank the following donors who have graciously contributed support to the Program for Women in Science and Engineering during the 2006-07 year. The accomplishments of this past year would not have been possible without these contributions.

### **Major Corporate/Foundation Donors**

Accenture Foundation  
Alcoa Foundation  
Cargill Foundation  
Fisher Controls  
John Deere Foundation  
KJWW Engineering  
MidAmerican Energy  
Pioneer Hi-Bred  
Rockwell Collins

### **Corporate Matching Gifts**

Accenture Foundation  
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AT&T Foundation  
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Burlington Northern  
Chevron Texaco  
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General Electric  
Harley Davidson  
Pioneer Hi-Bred International  
Procter and Gamble  
Rockwell Collins  
Verizon

**Plus 84 Individual/Family Donors**

## APPENDIX 4: PWSE 2006-07 Financials

### Revenue Sources

ISU General Fund	278870
ISU Foundation gifts, grants, earnings	103345
Summer Intern Faculty grants	61802
Career Conference fees and t-shirts	46517
ISU Greater University Funds for Excellence	37000
ISU Learning Community funds	24667
Summer Intern College support/transfers	20000
	8412
WiSE Getaway participant fees	1800
	<b>582413</b>

### Expenditures

Staff Salary and Benefits	287003
Summer Intern Program	91623
Career Conferences	60058
Scholarships	32168
Learning Communities	24852
Student Role Models	12613
Cargill leadership	12016
WiSE Getaway	10167
Marketing and 20th Anniversary	10080
Computers and Phones	9821
Summer Intern Housing	8412
Staff Development/WEPAN	7578
General Administration	5786
Academic Support	4178
Supplies	1890
Cargill IT Scholar Programming	1680
On-campus Student Programming	1310
Girlinks	443
Outreach Initiatives	441
Advisory Board	296
	<b>582413</b>

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