RESIDENTIAL PROGRAMS FOR FIRST-YEAR WOMEN IN
SCIENCE AND ENGINEERING

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The Women in Science Programs (WISP) at Purdue University is composed of the Undergraduate and Graduate Programs. The Undergraduate Programs consist of the Earhart Residence Hall Program, Tutoring, Undergraduate Mentoring, and Scholarships. The Graduate Programs consist of the Graduate Mentoring Program only.

The Earhart Residential Program started in 1994 with one floor of freshman women who were in the Women in Engineering Programs (WIEP). By 1997, WIEP had expanded to three floors and the Women in Science Programs (WISP) added a floor. Currently there are 5 floors totaling 250 students, of whom 160 are first-year students. The residence hall system allows continuing students to remain on the floor if they choose to do so. This limits available space for freshman but also encourages natural mentoring. Although WIEP and WISP are on contiguous floors, and sometimes share a floor, the two programs are operated separately.

All of the freshman living together in the WISP Earhart Residential Program are part of the Undergraduate Mentoring Program. Each of these students is matched with an upper-class mentor in the same major. The mentors participate in a required two-hour training program. The freshmen and their mentors participate in a monthly dinner program that encourages networking with each other and faculty member who frequently attend. The are eight monthly dinner programs that bring in speakers on topics of interest such as Resume Writing, Interviewing, Balancing Family and Career, and Conflict Resolution. A paid leadership team of five upper-class students meet weekly to plan, facilitate, and evaluate the Mentoring Programs.

Tutoring is offered in Earhart Hall to participants in both WISP and WIEP. Freshmen in Science and Engineering take similar courses that are quite rigorous. Tutoring is conveniently offered in Earhart Hall 15 hours/week from Sunday through Thursday nights from 7 PM – 10 PM. Paid, upper-class honor students are used as tutors. The tutors are trained and supervised by a graduate student in Chemistry Education. In the fall of 1998, 140 students used the tutoring for a total of 395 visits. Repeat visits indicate that the students found the service helpful.
Statistical Analysis has been completed on the program participants in WISP since 1997. The number of participants is as follows:

- 1997 participants – 47 freshman, 36 mentors
- 1998 participants – 82 freshmen, 47 mentors
- 1999 participants – 71 freshmen, 60 mentors

A Matched Control Group was selected for each participant group. The Matched Control Group was selected based on gender, starting date, school, major, race and pre-college academic indicators. It was determined that the Participant Group is statistically significantly different to the group of all females in the School of Science but not statistically significantly different to the Matched Control Group. One of the differences can be attributed to the fact that the Participant and Matched Control Groups were over-represented in ethnic minorities. In 1997 the School of Science was 9% non-white while the WISP Participants Group was 19% non-white.

Retention rate was examined for 1997 beginners after they completed their 4th semester. Retention was significantly higher to Purdue and the School of Science for the WISP Participant Group (n = 46) than the Matched Control Group (n = 47). As a reference, the retention of the other females in Science (n = 258) was also reported. Of the WISP Participant Group, 93% were retained to Purdue and 61% were still in Science after 4 semesters. This compares to 70% to Purdue and 38% to Science of the Matched Control Group. The Other Science Females fell between these two groups with 85% to Purdue and 43% to Science. One possible explanation of this data is that the WISP group would have had lower retention than the other Science females without intervention, as did the Matched Control Group. The fact that the retention was statistically significantly higher for the WISP Group is evidence that the program has been effective.

Another factor that was examined was academic success, measured by cumulative grade point average (GPA) and cumulative credits. Although the WISP Participants had a slightly higher GPA and credits completed, it was not statistically significant. The GPA for WISP Participants was 3.16 which was 6% higher than the Matched Control Group’s GPA of 2.97. WISP Participants completed an average of 59.36 credits which was 6% higher than the 56.11 completed by the Matched Control Group. One conclusion that can be drawn is that the greater retention rate of the WISP is not a factor of significantly better academic standing. It is our feeling that WISP Earhart Residence Hall Program is not simply an expensive tutoring program but a unique effort to overcome isolation and other obstacles often felt by female science majors.

A few improvements are planned for the 1999 – 2000 academic year. The mentoring pairs will sign a contract at the beginning of the year outlining their duties and responsibilities. When possible, mentoring will be one-to-one and no more than two-to-one. The mentoring pairs will be divided into sub-groups by major so that better communication can be facilitated between the sub-group leaders and the mentoring pairs.