PURDUE UNDERGRADUATE: WOMEN IN SCIENCE PROGRAM (WISP)

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First Year Experience Conference  
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FLOW OF THE HOUR

- Purdue Background Information
- Women in Science Programs
- Sophomore Learning Community
- Study Data
- Retention Strategies
- Key Elements to Success
- Program Challenges
- Q&A
Purdue University:

- Large Midwestern, Land Grant University

Headcount Enrollment 2009-2010

- Undergraduate 31,145
- Graduate 7,639
- Professional 913
- Total 39,697
PURDUE STUDENTS

- High numbers of students live in University Residences:
  - 30% of the total student body
  - 90% of first-year students

- Low percent of women attend 2009-10:
  - 57% national average
  - 42% of undergraduate population
  - 37% of science students

Sources: Purdue University Data Digest 2009-10
(http://www.purdue.edu/DataDigest/pages/additional/add_hous.htm)
(http://www.purdue.edu/DataDigest/pages/students/stu_gender.htm)
(http://nces.ed.gov/fastfacts/display.asp?id=98)
WHY IS WISP IMPORTANT?

Women are still extremely underrepresented in the sciences.

Despite considerable gains in the number of women pursuing graduate degrees in the sciences, women currently earn only 23.6% of all PhDs in math & computer science, 26.7% in the physical sciences, and only 18.3% in engineering.

National Council for Research on Women (http://www.ncrw.org/)
The Women in Science Programs (WISP) is in place to provide women in the College of Science at Purdue University support and strategies to successfully complete their desired degree objective and reach their full potential as scientists.
<table>
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<th>Year</th>
<th>Graduate Numbers</th>
<th>Undergraduate Mentors</th>
<th>Mentees</th>
<th>Total</th>
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<tr>
<td>2010</td>
<td>226</td>
<td>114</td>
<td>72</td>
<td>412</td>
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<tr>
<td>Total</td>
<td>1509</td>
<td>929</td>
<td>930</td>
<td>3368</td>
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PURDUE’S LEARNING COMMUNITIES

- A group of 20–30 first-year students who take two or three of the same courses together;
- A group of first-year students who share a common academic interest and live in the same residence hall; or,
- A group of first-year students who take part in both of these activities.

Source: Purdue University Student Access, Transition and Success Office, 2011
UNDERGRADUATE MENTOR PROGRAM

- Complement of the Residential Program
  - Upper-class undergraduates invited to be mentors
  - Relationships grow and flourish
  - Expose the students to role models
  - Provides monthly dinner and social programs
  - Informal communication between meetings
UNDERGRADUATE LEADERSHIP TEAM

- Undergraduate Mentoring Programs
- Supervised, paid students
- Team Retreat
- Team shapes programs
- Gain valuable skills
- Meet and plan weekly meeting
- Plan small socials
- High school outreach
WISP PROGRAM DESCRIPTIONS

- **Residential Program**
  - Allow freshmen students with the same academic interest to live together
  - Forms a network for studying, support and friendship

- **Tutoring Program**
  - Located in same residence hall where the first-year students reside
  - Trained and supervised upper-class undergraduate honor student

- **Monthly Dinner & Programs**
  - Meredith Residence Hall
  - Themed Meals
  - Female Scientist as Speaker
  - Additional socials with mentors
SOPHOMORE LEARNING COMMUNITY

Sophomore Learning Community

- Group Processing Skills
- Leadership
- Decision Making
- Service Learning

ADDITIONAL COLLEGES WITH SOPHOMORE PROGRAMS: HTTP://WWW.SC.EDU/FYE/RESOURCES/SOPH/SCHOOL.HTML
PURPOSE OF STUDY

Does participation in the WISP Residential Learning Community effect persistence towards graduation in the College of Science at Purdue University?
THEORETICAL FRAMEWORK

+ **Vincent Tinto (1993)** identifies three major sources of student departure: academic difficulties, the inability of individuals to resolve their educational and occupational goals, and their failure to become or remain incorporated in the intellectual and social life of the institution.

+ **Tinto (1975, 1993)** indicates that retention happens if:
  - High expectations are set for students to succeed
  - Specific information about major and career are shared and mapped out for the student
  - They are aware and have access to student organization, mentoring programs, and bridging programs
  - During the first year of college, positive and frequent contact with peers, faculty and staff occurs
  - A knowledge base for students is fostered

+ **Stassen (2003)** establishes that living learning communities that are effortless in make-up can still have a positive impact on students advancing academic achievement, retention and connections.
METHOD

The participants in this study consisted of a total of 391 first year science students who matriculated in the college of science at Purdue University in Fall of 2002.

- 50 first year women science students were WISP RLC participants
- 341 first year women in science students were NON-WISP RLC participants

\[ N = 391 \]

WISP RLC = women in science residential learning community
NON-WISP RLC = not in the women in science residential learning community
6 YEAR GRADUATION RATE

- College of Science
  - 93 = 23.80%

- NON-College of Science
  - 182 = 46.50%

- Unknown
  - 116 = 29.70%
RESULTS FOR GRAD 6YRS (W/O STUDENTS UNKNOWN)

WISP LC

- \( N = 40 \)
- GRAD COS
  - 20
  - 50%
- GRAD NON-COS GRAD
  - 20
  - 50%

NON-WISP LC

- \( N = 235 \)
- GRAD COS
  - 73
  - 31%
- GRAD NON-COS GRAD
  - 162
  - 69%

STATISTICAL SIGNIFICANCE

P-Value of \textless \ .05\ Equals to significant difference

- Used Logistic Binary Regression
- \( P\)-value = .021
### 2008 College of Science LC Student Retention to PU

<table>
<thead>
<tr>
<th>Women in College Of Science</th>
<th>Initial Cohort</th>
<th>Retained</th>
<th>Percent Retained</th>
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<tbody>
<tr>
<td>WISP</td>
<td>70</td>
<td>63</td>
<td>90.00%</td>
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<tr>
<td>Any other Science LC</td>
<td>57</td>
<td>50</td>
<td>87.72%</td>
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<tr>
<td>NON LC</td>
<td>244</td>
<td>214</td>
<td>87.70%</td>
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<tr>
<td>Total for COS</td>
<td>371</td>
<td>327</td>
<td>88.14%</td>
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<tr>
<td>Any other Science LC</td>
<td>57</td>
<td>34</td>
<td>59.65%</td>
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2008 COHORT:
PERCENT RETAINED TO PURDUE

1-Year Retention to PU

- WISP LC: 90.00%
- NON LC: 87.70%
- All Women w/o COS: 86.34%
ENDLESS POSSIBILITIES FOR RETENTION

Residential Learning Communities

JANDOS Scholarship

Mentor Role

Leadership Team
PROGRAM SUCCESS

- Adequate interest in program
- Participation aids success
- Higher retention than other Science students
- Attractive fundraising options for donors
- Campus collaborations
- Recruiting
- Students have multiple points of participation

PERSONAL SUCCESS

- Increase self-confidence
- Provide a sense of identity
- Retention to entry college of choice
- Academic & social engagement
PROGRAM CHALLENGES

- Funding
- Assessment
- Low retention in Science
- Attendance
- Attrition
- Students have multiple points of participation

PERSONAL CHALLENGES

- Commitment
- Science curriculum
- Sense of belonging
- Isolation, fears, anxieties
- Engagement with peers
REFERENCES


QUESTIONS?