Utah Valley University

PIPE-STEM Showcase

September 18, 2015
<table>
<thead>
<tr>
<th>Degrees @ UVU</th>
<th>Level</th>
<th># Men</th>
<th>% Men</th>
<th># Women</th>
<th>% Women</th>
<th># Men</th>
<th>% Men</th>
<th># Women</th>
<th>% Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp/Info Sciences</td>
<td>1 &lt; 2 years</td>
<td>4</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Health Professions</td>
<td>1 &lt; 2 years</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>20</td>
<td>91%</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td>Biological/Biomedical</td>
<td>Associate</td>
<td>2</td>
<td>40%</td>
<td>3</td>
<td>60%</td>
<td>4</td>
<td>67%</td>
<td>2</td>
<td>33%</td>
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<tr>
<td>Comp/Info Sciences</td>
<td>Associate</td>
<td>22</td>
<td>81%</td>
<td>5</td>
<td>19%</td>
<td>19</td>
<td>90%</td>
<td>2</td>
<td>10%</td>
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<tr>
<td>Engineering</td>
<td>Associate</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>21</td>
<td>91%</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td>Engineering Tech</td>
<td>Associate</td>
<td>48</td>
<td>92%</td>
<td>4</td>
<td>8%</td>
<td>56</td>
<td>95%</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Health Professions*</td>
<td>Associate</td>
<td>31</td>
<td>23%</td>
<td>104</td>
<td>77%</td>
<td>24</td>
<td>20%</td>
<td>98</td>
<td>80%</td>
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<td>Math &amp; Statistics</td>
<td>Associate</td>
<td>6</td>
<td>60%</td>
<td>4</td>
<td>40%</td>
<td>5</td>
<td>50%</td>
<td>5</td>
<td>50%</td>
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<tr>
<td>Biological/Biomedical</td>
<td>Bachelor</td>
<td>44</td>
<td>94%</td>
<td>3</td>
<td>6%</td>
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<td>Comp/Info Sciences</td>
<td>Bachelor</td>
<td>84</td>
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<td>15%</td>
<td>114</td>
<td>85%</td>
<td>20</td>
<td>15%</td>
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<tr>
<td>Engineering</td>
<td>Bachelor</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>8</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Health Professions*</td>
<td>Bachelor</td>
<td>25</td>
<td>32%</td>
<td>54</td>
<td>68%</td>
<td>34</td>
<td>20%</td>
<td>136</td>
<td>80%</td>
</tr>
<tr>
<td>Math &amp; Statistics</td>
<td>Bachelor</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>7</td>
<td>70%</td>
<td>3</td>
<td>30%</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Bachelor</td>
<td>11</td>
<td>92%</td>
<td>1</td>
<td>8%</td>
<td>22</td>
<td>85%</td>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>277</td>
<td>59%</td>
<td>193</td>
<td>41%</td>
<td>391</td>
<td>56%</td>
<td>303</td>
<td>44%</td>
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<tr>
<td>W/O Health Professions*</td>
<td>TOTAL</td>
<td>221</td>
<td>86%</td>
<td>35</td>
<td>14%</td>
<td>313</td>
<td>82%</td>
<td>67</td>
<td>18%</td>
</tr>
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</table>
Root Cause #1

Discouragement by family members, teachers, or friends

Action Research Results

- All STEM majors influenced by family.
- STEM females were significantly influenced by junior and high-school teachers.
- Non-STEM females had significant negative experiences with advisors.
- Non-STEM females significantly influenced by friends.
Root Cause #2

Doubt About Own Abilities in STEM Areas

Action Research Results

- Female non STEM majors were much more likely to strongly agree with the idea that doubts about their own abilities in STEM majors discouraged them from enrolling in a STEM major.

- Females doubt their abilities more than males, but this is largely attributable to female non STEM majors.
Root Cause #3

Unfamiliar with STEM Degrees at UVU

Action Research Results

- Female STEM majors were significantly more likely to be very familiar with STEM majors
  - Had positive experiences at UVU events
  - Had positive influence from UVU marketing material

- Female non-STEM majors were significantly more likely to be not at all familiar with STEM majors
Focus Groups

Female STEM Majors
1. Chose major because it interested them
2. Believe others don’t give STEM a chance (stereotype)
3. 2 major themes: early, positive, hands-on experiences and being tutored or a tutor in H.S.
4. Like individual attention from teachers at UVU
5. Being minority may be odd but not negative

Female Non-STEM majors
1. Math/science stereotypes not feminine at all
2. No female role models
3. Didn’t take “hard” major for risk of failure
4. STEM seems time-consuming
5. Would like more info on how STEM careers are flexible and work with family responsibilities
6. Explain careers available
Goals

1. By Fall 2016, we will reduce attrition of STEM female FTIACS by 10% from Fall 2012.

2. By May 2015, we will increase the percentage of advisors who receive equity and access STEM training from 0% to 75%.

3. By FA16, we will increase first-time female STEM majors by 10%.
Strategy #1: Marketing

- Focus groups (completed April 2015)
  - Completed April 2015
  - Transcript completed September 2015

- Brochures & Marketing Material (in progress)
  - Draft copy developed for distribution at STEM Open House for Women

- Information on web site
  - Target date was October 2015
  - Marketing material will need to be developed first
Strategy #2: Advisor Training

- Schedule Training (ongoing)
- Conduct Training (ongoing)
- Develop Training Material (in progress)

Results
1. In June, approximately 100 advisors received information on advising students into STEM fields.
2. In August, about 25 faculty members attended a workshop to learn the results of our survey and strategies to use in the classroom to increase student success.
3. Submitted grant to receive micro-messaging training but was not funded.
4. Training material for advisors and faculty will be done in conjunction with marketing material (create a brand).
Strategy#3: Learning Communities

- Develop course pairings
- Schedule Learning Community for Spring 2016
- Survey Students

Results

1. Unable to schedule learning communities even though there was much effort to do so.
2. Could not find STEM teacher to pair with University Student Success course (to expose students to STEM professions)
3. It was determined that the math-physics course would not get enough students to carry based on previous efforts (to reduce attrition of current STEM females).
4. Part of the problem was Spring 2016 was scheduled in mid-July.
5. We will make another attempt for Fall 2016.
What We Learned

- Female students are not as familiar with STEM professions as we thought.
- Engineering disciplines have the least amount of female students.
- Moving the needle on the number of females in STEM fields is a huge effort.
- Faculty need to be as involved as advisors.
STEM Events

- STEM Women’s Open House
  - Undecided females and current STEM students

- Women Tech Council Mentoring Night
  - Mentors from WTC talk with female STEM students

- SheTech Explorer Day
  - High school females spend day at UVU learning about STEM jobs from local businesses and completing a STEM-related activity
Plans Moving Forward

- Develop and distribute marketing material for students, advisors, and faculty
- Continue advisor training and conduct survey
- Reach out to additional faculty members
- Determine how to add information to UVU web site
- Schedule Learning Community for fall 2016
- Off-site STEM retreat at Capitol Reef