1. What evidence do you have that students achieve your stated expected outcomes?

**EO 1: Improve effectiveness and quality of outreach and recruitment programs in the WEMS Program**

In the 2012/2103 academic year, the WEMS Program reached 2100+ pre-college students, college students, parents and teachers throughout the year. This is an increase from the 2006 AOC report (500-1000). Several assessments are taken of many events and the items below summarize some key findings that indicate the effectiveness and quality have improved.

**Women in Engineering Career Day (2010-2012)**
- 70% of the participants say they will consider a career in engineering
- 65% will consider attending UW-Platteville
- 87% report the program met their expectations
- 93% would recommend the program to a friend
- Average scores for specific event activities range from 3.868 to 4.830 (5 point scale with 5 being the highest)

**Sky’s the Limit Program (2010-2012)**
- New model established to accommodate specific age groups in 2010. Three programs annually focused on 7-8\textsuperscript{th} grades, 9-10\textsuperscript{th} grades, and 11-12\textsuperscript{th} grades started in 2010
- 2008: 15 participants; 2009: 31; 2010: 45; 2011: 51; 2012: 57 (one program cancelled due to lack of funding)
- The following points are a result of the program surveys conducted by an external evaluator.
  - Participants left with new, correct knowledge of STEM fields
    - 11-12\textsuperscript{th} grades: 65% agree
    - 9-10\textsuperscript{th} grades: 67%
    - 7-8\textsuperscript{th} grades: 94%
  - Participants found the experience enjoyable
    - 11-12\textsuperscript{th} grades: 41% strongly agree
    - 9-10\textsuperscript{th} grades: 83%
    - 7-8\textsuperscript{th} grades: 95%
  - Participants are more likely to attend UW-Platteville as a result of the activity
    - 11-12\textsuperscript{th} grades: 59% answered yes
    - 9-10\textsuperscript{th} grades: 46%
    - 7-8\textsuperscript{th} grades: 79%
  - Participants are more likely to pursue a STEM career as a result of the activity
    - 11-12\textsuperscript{th} grades: 77% answered yes
    - 9-10\textsuperscript{th} grades: 54%
    - 7-8\textsuperscript{th} grades: 42%

Additional recruitment efforts have resulted from grant applications that yielded additional recruitment/outreach benefits. The STEM Scholars program (of which the Program Director is a Co-PI on the

---

NSF grant) has had significant results in diversifying the applicant pool and thus increasing the number of women and underrepresented minorities who are STEM Scholars. Several marketing and recruiting initiatives were utilized over four years to result in changes in the demographics of those who apply for the scholarship all the way to the actual selection of the scholars. In addition, several changes were made to the application of the program to better predict the success of the students succeeding in the STEM Scholars Program. See the tables below for the data and demographics.

<table>
<thead>
<tr>
<th>EMS Admitted Students</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>121</td>
<td>147</td>
<td>166</td>
<td>184</td>
</tr>
<tr>
<td>URM</td>
<td>19</td>
<td>23</td>
<td>65</td>
<td>98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of STEM Scholar Applications</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>18</td>
<td>30</td>
<td>50</td>
<td>69</td>
</tr>
<tr>
<td>URM</td>
<td>2</td>
<td>7</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEM Scholar Applications to Selection Committee</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>12</td>
<td>18</td>
<td>31</td>
<td>27</td>
</tr>
<tr>
<td>URM</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEM Scholars</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>URM</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

An additional grant program where UW-Platteville is a partner is the NSF Pre-Engineering Education Collaborative Grant (PEEC) (the program Director is a Co-PI on the grant) with the College of Menominee Nation. Several outreach efforts have taken place with CMN over the past year and with schools where there is a larger population of American Indian students. A full time special programs manager was hired to facilitate relationships with CMN, assist with recruitment, assist in establishing an articulation agreement between UW-Platteville and CMN, and make connections with students. The goals of this grant include creating an Associate’s Degree in Engineering of distinction at CMN, which includes building facilities, hiring faculty to support the new degree, and have 20 students transfer to either UW-Platteville or UW-Madison to complete degrees in engineering. Members of the team have participated in cultural competence training and in August 2013, a version of the Explore Engineering Summer Program will take place at the CMN campus. To date there are 15 students signed up for the program. The program limit is 20 students. The first transfer to UW-Platteville will occur next fall through the Collaborative Engineering program at the Fox Valley campus.
**EO 2: Improve outreach/recruitment program to program yields**

Current data systems and the lack of staffing to support data collection and gathering make this outcome difficult to report on. However, due to increased staffing as a result of the receipt of grants, additional staff members are and will continue to assist in tracking this data more closely. However, some data has been collected for the Sky’s the Limit programs and also the Luncheon/Tour Program (prospect campus tour and lunch with WEMS staff). A query from the Women in Engineering ProActive Network via the WEPAN-I, quoted that a 30% yield rate from outreach/recruitment programs was an excellent yield. An analysis of yields from the Sky’s the Limit Programs occurred in Summer 2012 and in April 2012. The following was observed:

- 2011: 11th/12th grade program yielded 10 women (of 14-71%), 2 additional applied but did not attend
- Eight participants enrolled multiple years (2 girls have participated for 5 years)
- Nine participants had sisters participate in the program
- 32% (30/31) of girls who attended the April 2013 program for 9th and 10th graders had attended a previous Sky’s the Limit program.

This evidence shows that girls indeed are yielding program to program and also to UW-Platteville. Assessment from the Women in EMS Advisory Board and also from strategic planning efforts in 2009 suggested changes in the outreach model and it appears that these changes are having an impact on program to program yield rates. Program staff members are looking forward to more data collection and tabulation over the next few years to better assess the program yields. Additionally, a new Client Relationship Manager (CRM) system in Prospective Student services will be able to assist with yield data. Finally, the recent NSF STEP grant obtained by program staff members and faculty will also assist in managing overall outreach and recruitment efforts within the College of EMS. The goal is to facilitate outreach but to also provide consistent materials, training and support for outreach that occurs from the College of EMS. This is a collaborative project involving Prospective Student Services, Office of Multicultural Student Affairs and College of EMS faculty/staff members.

**EO 3: Increase the number of women in the College of EMS to national levels**

Unfortunately UW-Platteville had been following the trend nationally with a decrease in the number of women in the College of EMS. The national percentage of women in engineering decreased over the past seven years from nearly 20% to now 16.9%. However, the last two years have shown significant improvement in growth for women in the College EMS at UW-Platteville. Several events such as campus strategic planning, faculty/staff engagement, successful grant applications, revisions in outreach/recruitment marketing messages, collaborations with prospective student services and the Office of Multicultural Services, and a new curriculum focus in outreach events has assisted in 40% growth in the past two years. The graphs and charts below show the growth and respective data.
College of EMS Percent Change in Enrollment 2000-2012

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL EMS</th>
<th>Total EMS % Change</th>
<th>No. Female</th>
<th>Female % Change</th>
<th>No. Male</th>
<th>Male % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1655</td>
<td></td>
<td>243</td>
<td></td>
<td>1412</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>1937</td>
<td>17.04%</td>
<td>290</td>
<td>19.34%</td>
<td>1647</td>
<td>16.64%</td>
</tr>
<tr>
<td>2004</td>
<td>1928</td>
<td>-0.46%</td>
<td>282</td>
<td>-2.76%</td>
<td>1646</td>
<td>-0.06%</td>
</tr>
<tr>
<td>2006</td>
<td>2009</td>
<td>4.20%</td>
<td>295</td>
<td>4.61%</td>
<td>1714</td>
<td>4.13%</td>
</tr>
<tr>
<td>2008</td>
<td>2168</td>
<td>7.91%</td>
<td>266</td>
<td>-9.83%</td>
<td>1902</td>
<td>10.97%</td>
</tr>
<tr>
<td>2010</td>
<td>2484</td>
<td>14.58%</td>
<td>282</td>
<td>6.02%</td>
<td>2202</td>
<td>15.77%</td>
</tr>
<tr>
<td>2012</td>
<td>2980</td>
<td>19.97%</td>
<td>400</td>
<td>41.84%</td>
<td>2580</td>
<td>17.17%</td>
</tr>
</tbody>
</table>

College of EMS Enrollment 2000-2012

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL EMS</th>
<th>Number of Women</th>
<th>Number of Men</th>
<th>Percentage of Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1655</td>
<td>243</td>
<td>1412</td>
<td>14.68%</td>
</tr>
<tr>
<td>2001</td>
<td>1748</td>
<td>267</td>
<td>1481</td>
<td>15.27%</td>
</tr>
<tr>
<td>2002</td>
<td>1937</td>
<td>290</td>
<td>1647</td>
<td>14.97%</td>
</tr>
<tr>
<td>2003</td>
<td>1959</td>
<td>283</td>
<td>1676</td>
<td>14.45%</td>
</tr>
<tr>
<td>2004</td>
<td>1928</td>
<td>282</td>
<td>1646</td>
<td>14.63%</td>
</tr>
<tr>
<td>2005</td>
<td>1958</td>
<td>305</td>
<td>1653</td>
<td>15.58%</td>
</tr>
<tr>
<td>2006</td>
<td>1958</td>
<td>295</td>
<td>1714</td>
<td>14.68%</td>
</tr>
<tr>
<td>2007</td>
<td>2087</td>
<td>281</td>
<td>1806</td>
<td>13.46%</td>
</tr>
<tr>
<td>2008</td>
<td>2168</td>
<td>266</td>
<td>1902</td>
<td>12.27%</td>
</tr>
<tr>
<td>2009</td>
<td>2346</td>
<td>286</td>
<td>2060</td>
<td>12.19%</td>
</tr>
<tr>
<td>2010</td>
<td>2484</td>
<td>282</td>
<td>2202</td>
<td>11.35%</td>
</tr>
<tr>
<td>2011</td>
<td>2724</td>
<td>336</td>
<td>2388</td>
<td>12.33%</td>
</tr>
<tr>
<td>2012</td>
<td>2980</td>
<td>400</td>
<td>2580</td>
<td>13.42%</td>
</tr>
</tbody>
</table>

EO 4: Improve the effectiveness and quality of retention programs in the WEMS Program

Retention programs in the WEMS Program include: Mentor Program, Mentor Center, Collegiate Society of Women Engineers, Women in STEM Living and Learning Communities (WiSTEM LLC), and the Women in STEM Banquet. Some of these programs have more detailed assessment than others and yet some of the programs have just started and have only initial data.

The Society of Women Engineers (SWE) section is a significant component to the WEMS Program. The Director is the Faculty Advisor for SWE and works closely with the organization so that SWE events compliment WEMS Activities. Each semester, SWE and the WEMS Program host approximately 30 events (excluding Women in STEM Living and Learning Community events) that serve as retention activities. In 2006, the number of events was approximately 15. Some assessments are available for these activities and but because some of the activities are purely social in nature, there is not an overall assessment. SWE now has the largest UW-Platteville membership ever with over 50 paid members. In addition, the organization has been a 3-time award recipient as Student Organization of the Year since 2007. The organization has been the recipient of several regional and national awards focusing on membership growth and also retention of membership. In 2011, SWE President, Rebecca Summ was recognized as one of five National Outstanding Collegiate SWE members. A UW-Platteville
SWE member has never received this award before.

In 2013, the WEMS Program hosted the eighth annual Women in STEM banquet. Eight years ago, the first banquet served approximately 115 people and there were three sponsors. The 2012 event served 200 guests and this year approximately 175 people attended. The 2013 event had 16 business and individual sponsors. Assessments from the banquet indicate the following (60% response rate):

Student responses
- 74% agree that attending the event helped them to feel more confident in their ability to succeed in a STEM field.
- 90% were inspired by the student speakers.
- 77% agreed that the event made them feel excited about educational/career goals.
- 90% agreed that the event was a worthwhile experience.

Sponsor responses
- 93% agreed they had plenty of opportunity to meet and interact with students.
- 87% agreed that the students they interacted with were well-qualified.
- 93% agreed that the company’s money was well-spent on this event.
- 100% said they would recommend that their company send a representative to the event again in the future.

Faculty, staff, alumni and guest responses
- 100% agreed that the event was a worthwhile experience.
- 95% agreed that attending this event helped them to realize/remind them of the importance of supporting and encouraging women students in STEM.
- 90% agreed that they had the opportunity to connect with women STEM students in ways that they might not have been able to connect with in other settings.

The first UW-Platteville Living Learning Community was established in Fall 2012 in the WEMS Program. Approximately 24 women signed up the first year program while the enrollment for Fall 2013 is 32 (there is a waiting list this year). After initial assessments, Program staff decided to begin a second community for sophomore women in STEM in Fall 2013. Eighteen women are signed up for the community, with 67% (12) of them coming from the freshmen community in Fall 2012. Additional data will be gathered as the academic year comes to an end. Some key findings to this point are:

- 74% of the freshmen WiSTEM members found that cohort course scheduling was beneficial.
- A low percentage of community members utilized in residence tutors.
- Social events received the highest ratings.
- The meet and greet with professors held in the first semester had a similar rating as other resident only social events.
- Some aspects of the LLC that were not desirable to residents were scheduling issues with event programs, exposure to other types of students with different majors, and being in a residence hall with no males. The LLC was housed in the only all-female residence hall on campus.

The Mentor Program assessment currently tracks only participation. The implementation of the NSF STEP grant will both significantly improve the mentor program and also improve the assessment. On average, 40-60 women participate in the Women in EMS Mentor Program.
**EO 5: Develop partnerships which create professional networks and financial support for the WEMS Program.**
Several efforts have been made since 2006 to develop partnerships on and off campus. Successful grant applications, engagement of faculty and members from the UW-Platteville Foundation have been important to these developments.

- Over twenty faculty members are actively engaged in grant programs, curriculum development or other types of significant participation in the WEMS events. Six years ago, faculty member involvement was very minimal. These partnerships have yielded large grants, improved program performance and visibility.
- The WEMS Advisory Board expanded in the last few years and contains members both from the campus community and communities externally.
- External partnerships with industry and other partners have increased. Sixteen different donors contributed to the Women in STEM banquet. This is the largest number since the program started 8 years ago.
- A donor board was created and displayed near the Women in EMS Mentor Center.
- Several grant programs helped to forge relationships with the College of Menominee Nation, a network of professionals who have all received STEP grants, and a new external advisory board for the NSF STEP grant.

**EO 6: Improve Women in EMS program materials and marketing processes.**
A marketing assessment document was established in summer 2012 to document WEMS marketing processes. Results of this assessment include:

- Synergistic marketing efforts and specific targeted marketing efforts have made the marketing processes more efficient and cost effective.
- Connections with Prospective Student Services have increased with training of recruiters taking place annually. Specific efforts have taken place to reflect the National Academy of Engineering study regarding the “Public Perception of Engineering.”
- Program staff meet every six weeks to continue sharing of information and to improve collaboration. These efforts have taken place within the last 3 years and most likely have an impact on the enrollment growth of women in the College of EMS.

**EO 7: Develop and/or improve consistent assessment techniques for all Women in EMS Programs.**
The addition of new staff due to funded grants has resulted in improved processes for assessment.

- The WEMS program has always placed emphasis on assessment and over time some assessments are working very well. However, there is an overall lack of consistency from program to program and very little comprehensive analysis of all events and activities collectively.
- Some standardized assessment reports have been created to better reflect specific event effectiveness. With additional staffing and a better focus on overall assessment will occur in the next year. The use of standardized reports (where implemented) have proved very useful and several changes have occurred to improve those programs and outcomes.
- Standardized assessment reports have been shared with respective campus units to assist in improving collaborative efforts. Some programs have improved because of these reports and because they were shared with campus constituents.
- The WEMS Program has partnered with the Student Affairs Assessment Coordinator to learn more about tools associated with assessment such as Beacon, Baseline, Campus Labs, and Pioneer Link. The program director attended the annual campus assessment retreat to become better informed of new processes and tools to improve overall program assessment.
- Program staff has utilized and will continue to utilize the Columns of Learning and Development created by Student Affairs to guide assessment. Even though the WEMS Program is situated inside an academic unit, access to and coordination with Student Affairs personnel are critical to the success of the program.
2. **What have you learned as a result?**

**Lesson 1**
The strategic planning efforts that took place in 2009 created a solid plan and approach to improving the declining number of women in the College of EMS. Over $3 million of funded grants are currently in place and have added to the overall success of the WEMS Program. A one-page strategic plan has been approved by the Women in EMS Advisory Board and the plan aligns well with the campus strategic plan.

**Lesson 2**
As a student services program within an academic unit, there are some interesting and yet really effective outcomes. In the past 6 years, program staff members have been aligning with both academic and student affairs personnel to try and merge effective outreach/recruitment and retention efforts. Though difficult at times to negotiate, several positive outcomes have resulted in stronger programs, increased collaborations and most importantly, discoveries on the very distinct differences between academic and student affairs operations. Once differences have been discovered, it has become easier to navigate solutions to more effective recruitment and retention efforts.

The WEMS Program is a great model to evaluate when moving toward an overall campus model that supports students more effectively. There is no one silver bullet in solving recruitment and retention issues related to underrepresented students. There are indeed several high impact practices; however, it is important to realize that when implementing these high impact practices, the implementation has to be highly collaborative between all areas of the campus. In higher education, students tend to become classified narrowly (such as a female engineering student only). When doing this the student can lose her full identity. She may also be an individual who identifies as an artist, musician or a multicultural student. In order to effectively provide education for students, a holistic approach is needed where we can celebrate an individual’s identity across several different areas within the university setting. What this looks like for each student is very different and providing several different opportunities for learning and that identity development creates an overall environment where students can be successful. Therefore, effective collaboration, effective assessment and shared assessment results with civil discourse on how to improve will have the highest impact on recruitment and retention efforts.

**Lesson 3**
Several programs have seen significant changes as a result of a more focused and improved assessment plan. The Sky’s the Limit program went from a one-weekend event to three-weekend events with particular curriculum targets and focal points. Additionally, changes have been made in the Campus Tour/Luncheon program that now allow a young woman prospect to spend a full two hours with specially trained Women in EMS Staff on her visit to campus. This has assisted in developing a stronger relationship and thus a stronger chance of that prospect coming to campus.

**Lesson 4**
Despite the incredible amount of work required to write and report back on grants, UW-Platteville is uniquely positioned for additional grant funding. The overall campus culture and focus on diversity, several funded grant programs, and the increased partnerships (internal and external) will assist in helping the WEMS program to have more and bigger impact on overall student success.
Lesson 5
The addition of the Women in STEM Living and Learning communities provide additional opportunities for collaboration and a focus on students more holistically. Prospective students and parents are very much interested in living and learning communities. The WiSTEM LLC is a great addition to the overall program and current WEMS Program infrastructure helps to make the WiSTEM LLC successful and the addition of the WiSTEM LLC helps to make the WEMS Program successful. For example, when soliciting students to participate in events, the ladies in the WiSTEM LLC as a bonded cohort are specifically targeted. When the women in the WiSTEM LLC accept invitations to participate, this allows the WEMS Program to reach more students. Another example is the newly elected officers of the Society Women Engineers. Three of the members are from the WiSTEM LLC. This is truly a win-win addition.

Lesson 6
The resurrection of the Women in Science and Engineering class has been an instrumental part of the WEMS Program success the last six years. Upcoming assessments will provide a great resource in definitively knowing how great the impact has been. Recruitment and outreach programming in the WEMS program serve as great service learning opportunities for students. In addition, the class helps connect women to current programs within the College of EMS. The Women in Science and Engineering class will now be part of cohort course assignments for women in the WiSTEM LLC.

3. What, if any, changes will you make in order to improve the expected outcomes?

Improvement 1
The first improvement will focus on the systematic gathering of data and resources to put all assessment pieces together. Several assessments are currently in place; however there is not enough synthesis of all these pieces. In addition, new tools are available to assist. The WEMS Program staff will be fully utilizing these tools to improve overall assessment and comparative data.

Improvement 2
Faculty engagement has been a critical component to the last six years of growth and expansion in the WEMS Program. However, some more clarification and direction is needed to clearly outline expectations of faculty and staff when working with the WEMS Program. Efforts will be made to clearly outline responsibilities and deliverables.

Improvement 3
Collaborations will continue to be forged both off and on campus. Currently marketing is targeted; however collaborations with specific schools and organizations are necessary to ensure that opportunities are available to all women, including underrepresented minorities. The Office of Multicultural Student Affairs and the Prospective Student Services collaborations with the WEMS Program will occur in bigger and better ways. External advisory boards will also serve as a mechanism to assist in this effort.

Improvement 4
External funding is essential for the WEMS Program to be successful. The Director of the Program just received a re-title, this coupled along with the additional staff will allow the director to work more on development and grant writing efforts so that funding is available to support growing program initiatives and assessment.
Improvement 5
Many new programs and funded grants have occurred in the last four years. The program offerings have grown significantly. Some key project management principles need to be employed to manage the changes. Organizational charts, pictorial documents, and campus presentations are needed to help the campus community understand how the student services offered directly in an academic unit are advantageous to students and how this type of structure can help improve the representation of underrepresented individuals and also increase retention. This project management work will also increase the opportunities for partnerships both on and off campus, as this will help others understand how all of the WEMS initiatives are connected to the campus and college strategic plans.