

Minutes of March 21, 2012 CEAS-STEP Advisory Board Meeting

Present:

STEP Advisory Board: Dr. Tim Greene (Provost), Dr. Diane Anderson (V.P. Student Affairs), Dr. Tony Vizzini (Dean, Engineering and Applied Sciences), Dr. Alex Enyedi (Dean, Arts and Sciences), Dr. Bill Cobern (Director, MISE), Dr. Don Schreiber (Chair, Chemistry), Dr. Len Ginsberg (Professor, Biological Science), Dr. Daina Briedis (Asst. Dean of Student Advance and Associate Professor of Chemical Engineering, Michigan State University), and Dr. Joseph Slater (Professor of Mechanical & Materials Engineering and Associate Dean of Defense & Aerospace Studies, Wright State University)

STEP Project Team: Dr. Edmund Tsang, Anetra Grice, Dr. Ikhlas Abdel-Qader, Laura Darrah

SAMPI: Dr. Mark Jenness, Dr. Robert Ruhf

1. Briefing Report

A. Retention and Graduation Rates for STEP 2005-2010 Cohorts

STEP Retention and Graduation Rates In CEAS

			2005 Cohort 262 students	2006 Cohort 303 students	2007 Cohort 306 students	2008 Cohort 349 students	2009 Cohort 315 students	2010 Cohort 347 students
% MATH ACT =/ \leq 23			30.4	28.0	20.9	24.8	29.6	25.9
CSRDE ¹	WMU Baseline ²	Retention to CEAS						
69%	57.4%	2 nd Year	68.0%	70.1%	66.3%	67.5%	66.0	62.2 ¹²
53%	42.3%	3 rd Year	54.3%	52.8%	52.0%	52.1%	49.7	
NA	32.7%	4 th Year	44.5%	48.8% ⁶	43.3%	47.6		
NA	32.8% ⁴	5 th Year	44.6% ⁵	45.0% ⁸	42.8 ¹¹			
40.7% ³	32.3% ⁴	6 th Year	41.6% ⁷	45.1 ¹⁰				
NA	NA	7 th Year	40.8 ⁹					

¹Data is for all institutions (Highly Selective, Selective, Moderately Selective, Less Selective) as reported in the 2005-06 Consortium for Student Retention Data Exchange (CSRDE). WMU is a "Moderately Selective" institution. 2nd year retention and 6th-year graduation rate for "Moderately Selective" institution is 62% and 24%, respectively.

² CSRDE STEM Retention Survey, WMU Office of Student Academic & Institutional Research, data averaged 2000-05.

³37.4% graduated in a STEM field in 6 years with another 3.3% returned the 7th year for a combined 40.7%.

⁴ WMU Office of Student Academic & Institutional Research, data averaged 2000-03 [2].

⁵9.5% of the 2005 Cohort has graduated with CEAS degrees in 4 years and 35.1% are continuing in the 5th year for a combined 44.6%.

⁶48.8% returned to CEAS, plus another 2 students from this cohort have graduated with CEAS degrees.

⁷14.9% continued in CEAS in 6th year + 26.7% graduated with CEAS degrees in 5 years for a combined 41.6%.

⁸32.4% continued in CEAS in Year 5 + 12.6% graduated with CEAS degrees in 4 years for a combined 45.0%

⁹4.2% continued in CEAS in 7th year + 36.6% graduated with CEAS degrees in 6 years for a combined 40.8%

¹⁰14.7% continued in CEAS in 6th year + 30.4 graduated with CEAS degrees in 5 years for a combined 45.1%

¹¹34.7% continued in CEAS in 5th year + 8.1% graduated with CEAS degrees in 4 years for a combined 42.8%

¹² In addition, 13 students who have GPA \geq 2.00 and who did not return are currently enrolled in a community college near their hometowns, and 7 students who have GPA \geq 2.00 are attending a four-year institutions

(Lawrence Technological University, Michigan Technological University, Michigan State University, University of Michigan-Flint, University of Alaska-Anchorage, City College of Chicago/Harold Washington College, and University of Illinois).

Note: Kalamazoo Valley Community College does not report to the National Student Clearinghouse, so students who transferred there are not included in footnote #12.

B. Performance in 1st Year STEM Courses for 2011 STEP Cohort

	Fall 2009		Spring 2010		Fall 2010		Spring 2011		Fall 2011	
	STEP	Comparison	STEP	Comparison	STEP	Comparison	STEP	Comparison	STEP	Comparison
Algebra I (MATH 1100)	72.2	65.7	33.3	55.4	45.5	76.9	71.4	51.1	83.3	64.9
Algebra II (MATH 1110)	64.4	52.3	30.8	52.1	59.5	46.0	33.3	42.3	61.0	46.9
Pre-Calculus (MATH 1180)	58.0	50.8	66.2	46.4	63.6	59.2	77.4	55.7	65.6	46.0
Calculus I (MATH 1700)	69.5	67.1	85.0	68.2	66.7	57.9	58.8	57.3	63.1	57.9
Calculus I (MATH 1220)	81.0	62.9	55.0	44.4	75.0	62.1	76.7	52.0	78.6	50.0
Calculus II (MATH 1710)	61.3	50.0	47.9	60.4	-	-	61.1	48.1	90.9	61.1
Calculus II (MATH 1230)	72.2	52.5	79.2	52.7	80.9	53.8	88.4	63.3	66.0	50.0
CHEM 1100	79.2	64.5	74.4	68.6	84.3	74.2	73.5	76.3	80.8	67.4
PHYS 1130	-	-	87.5	95.2	-	-	100.0	44.7	-	-
PHYS 2050	-	-	70.4	52.3	-	-	80.2	47.8	-	-
IME 1020	91.1	81.4	-	-	85.4	77.4	-	-	88.4	76.9
IME 1420	94.2	85.5	-	-	93.4	83.8	-	-	94.8	81.0

Bold represents statistically significant at $\alpha \leq 0.05$

C. Fall Survey Summary of 2011 STEP Cohort -- See summary at end of minutes.

Comments and Discussions:

Provost Greene asked if there is a way for the survey to direct students to support services when their response to the survey indicate they might need help, e.g., when student indicate “School” or “Life” management has been “very difficult.”

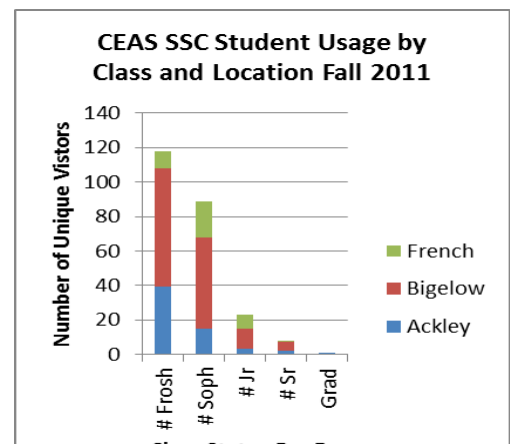
Ensuring discussions were concerned about privacy issue and whether the survey itself serves as help for students.

D. Student Success Centers/Engineering Peer Mentors:

Since the creation of the Engineering House/Bigelow, the participation rate has increased from 101 in 2006 to 226 in 2011. In addition, 632 CEAS students live in the residence hall in Fall 2011, comprising 13% of total residence hall occupancy.

Furthermore, 40% of the CEAS students in the residence hall in 2011-12 are upper-level students.

To support the growing number of CEAS students living on campus, the number of Student Success Centers has increased from one (1) with a staff of four (4) in 2010-11 to three (3)



with a staff of 10 in 2011-12. Furthermore, the number of Engineering Peer Mentors who live in residence hall has increased from three (3) in 2010-11 to six (6) in 2011-12.

Some findings for 2011-12 include:

- Math is the most common reason CEAS students came to the SSC (Calc I and II highest use), followed by physics then chemistry (same trend as Year 1).
- CEAS students' frequency of SSC use: 66% a few times/week; 12% less than 1/week; 12% use daily
- CEAS student's use the SSCs most often for: 65% tutoring; 29% independent study; 25% group study
- Discovered a significant number of business majors sought tutoring assistance for math. Residence Life colleagues were able to share that data with the Haworth College of Business. The college now pays for a tutor in the Business Learning Community who works evenings 3 nights/week.
- Significantly, struggling students do not come to the SSC at a high frequency – see table below.

GPA Comparisons of Residence Hall CEAS SSC Users and Non-Users

Fall 2011 GPA Comparison of Residence Hall CEAS Students Related to Student Success Center Usage										
	Freshman		Sophomore		Junior		Senior		Overall	
	GPA	#	GPA	#	GPA	#	GPA	#	GPA	#
Res Hall CEAS SSC Users	3.03*	96	2.67	49	2.26	13	2.50	2	2.85*	160
Res Hall CEAS non-SSC Users	2.34	283	2.40	106	2.68	44	2.91	25	2.42	458
All Res Hall CEAS Students	2.51	379	2.49	155	2.59	57	2.88	27	2.53	618

* Difference is statistically significant at $\alpha \leq 0.05$

Fall Term GPA Comparison of Residence Hall CEAS Students Related to Student Success Center Usage		
	GPA Average	
	Fall 2010	Fall 2011
Note: Opened two additional SSCs Fall 2011		
Res Hall CEAS SSC Users	2.77 [^]	2.85*
Res Hall CEAS non-SSC Users	2.27	2.42

[^] Statistical analysis not completed

* Difference is statistically significant at $\alpha \leq 0.05$

	Mean GPAs of Freshmen CEAS Residence Hall Students			
	Fall 2010		Fall 2011	
	Students	GPA	Students	GPA
Bigelow	173	2.62*	162	2.55
Non-Bigelow	250	2.38	217	2.49
All	424	2.48	379	2.51

* Difference is statistically significant at $\alpha \leq 0.05$

	Mean GPAs of All CEAS Residence Hall Students			
	Fall 2010		Fall 2011	
	Students	GPA	Students	GPA
	226	2.68*	225	2.52
	401	2.46	393	2.53
	627	2.72	618	2.53

Note: The difference in the number of students reported between the two table sets is due to the occupancy comparison being done in October and the GPA comparison done based on December residency. The decrease is due to students who changed majors during the fall term.

Comments and Discussions:

Discussions centered on how to get students with GPA between 2.00 and 2.50 to use SSC, based on the GPA comparison between SSC users and non-users. Provost Greene asked whether there is a way for tutors in SSC to “tweet” about the subject they will be tutoring as a way to entice more student participation of SSC.

E. Alumni Mentoring of Female CEAS Students (Women in Engineering Mentoring Network):

For 2011-12, invitations to participate in Alumni Mentoring were sent to 43 female first-year students and 44 female sophomores. Sixteen applications were received from first-year students and 11 applications from sophomores. Of these applications, 13 first-year students and eight (of which three are returning from last year’s mentees cohort) were accepted for 2011-12. In addition, invitations were sent to more than 150 female engineers alumni in the Greater Kalamazoo area. Nineteen applications were submitted, and 17 mentors were selected (one of the mentor is not a WMU alum).

A total of 17 mentor-mentee teams were created for 2011-12, with four teams composed of one mentor and two mentees while others are one-on-one teams. Mentees are matched with mentors based on discipline and availability. Highlights of the program include:

- Kick-off event in October 2011 attended by six mentors and 15 mentees, with positive interactions between mentors and mentees at the event
- Facebook group and webpage (www.wmich.edu/step/wemn) are updated with event photos
- WEMN student staff at Engineering House/Bigelow Hall encourages and facilitates communication with students



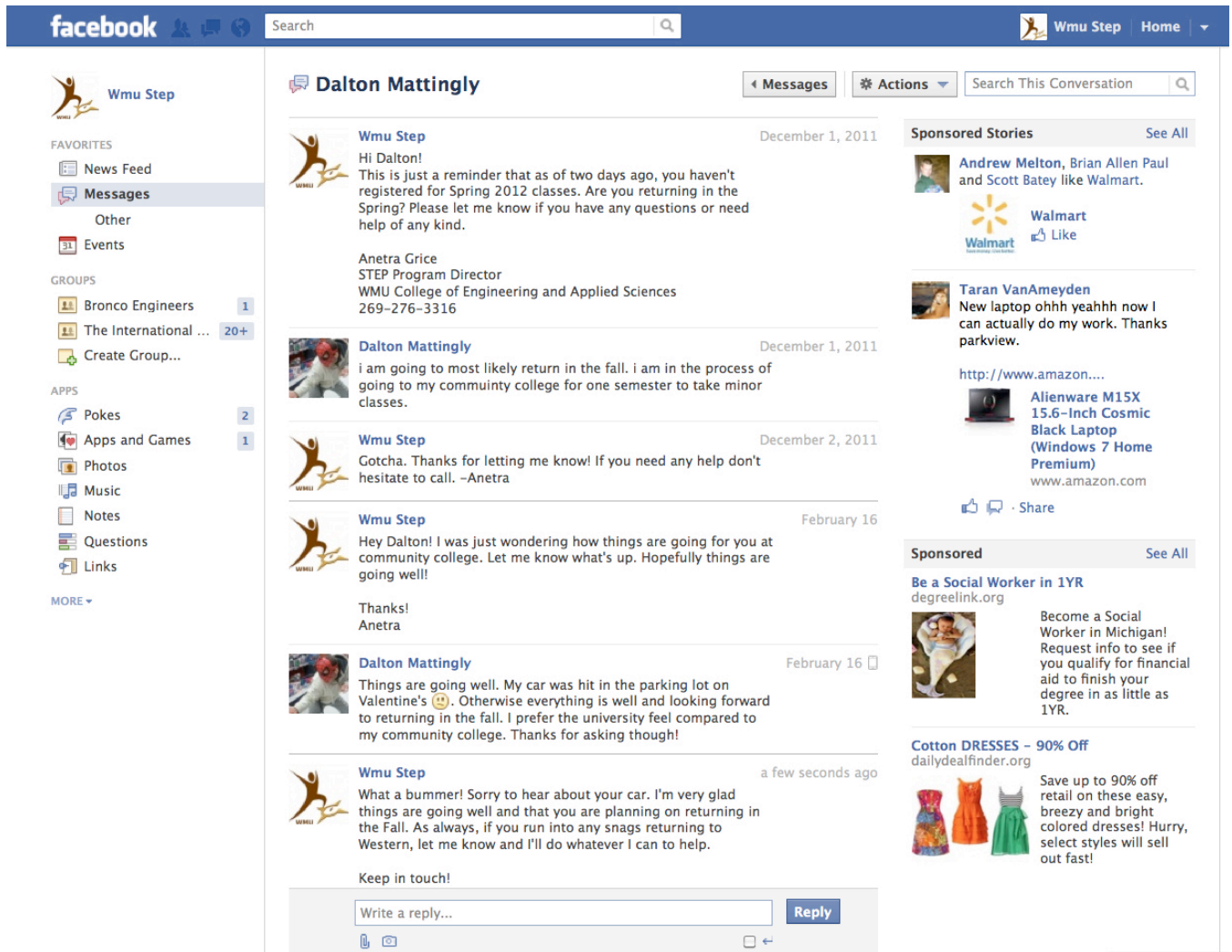
Kick-Off Event of CEAS-WEMN Program in Bigelow Hall, Oct. 6, 2011

Comments and Discussions:

Suggestions were offered about engaging graduate students as mentors since graduate school is a career path. It was also suggested that Dean Vizzini contacts the Director of Alumni Office for contacts of CEAS women graduates.

F. Use of STEP-Facebook to Connect with Students:

STEP-Face book has a total of 354 connections as of February 16, 2012: 277 first-year students, 10 sophomores, 23 juniors, eight (8) seniors, two (2) masters students, and 34 others ((professors, parents, others). The following image captures the potential of STEP-Facebook to connect with students.



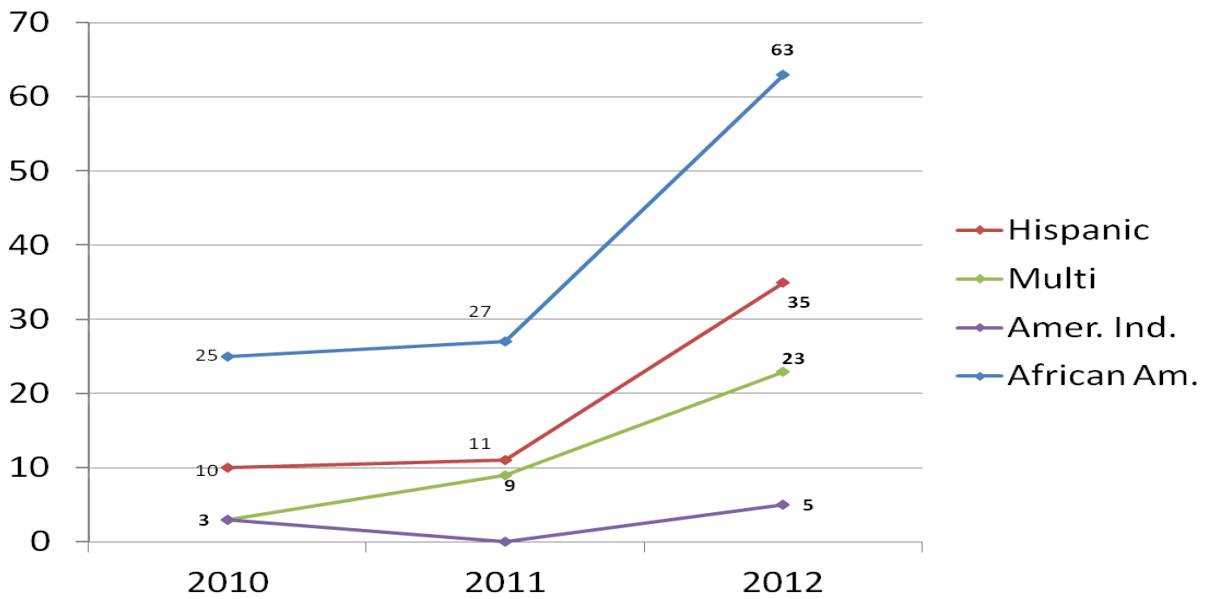
G. Recruiting:

One of the goals of the current STEP grant is increasing the number of underrepresented student populations (females and ethnic minorities) in the College of Engineering and Applied Sciences. Toward this goal, the following strategies have been deployed in 2010-11 and 2011-12:

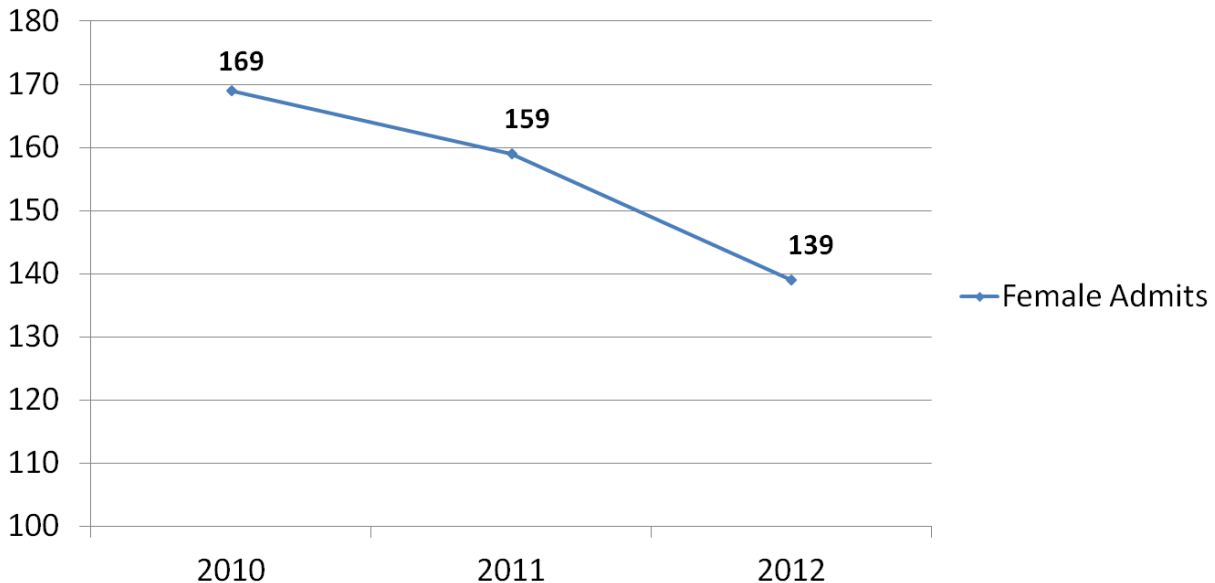
- Translated the CEAS brochure into Spanish

- Sent the Spanish CEAS brochures to the Aspira (a non-profit Latino youth outreach program) of Illinois and the Hispanic Center of West Michigan in Grand Rapids
- Participated in the National Hispanic College fairs in 2010 and 2011
- Participated in the National Scholarship Service Fair in Detroit in 2010 and 2011
- Targeted high URM population areas for teacher mailing and classroom posters (188 additional mailings to the Detroit area and 230 additional mailing to Chicago area schools in 2010)
- Included students from the WMU student chapters of National Society of Black Engineers (NSBE) and Society of Women Engineers (SWE) in on-campus recruitment events
- Highlighted NSBE and SWE in the new CEAS Viewbook
- The following are admit and yield data for females and underrepresented minorities

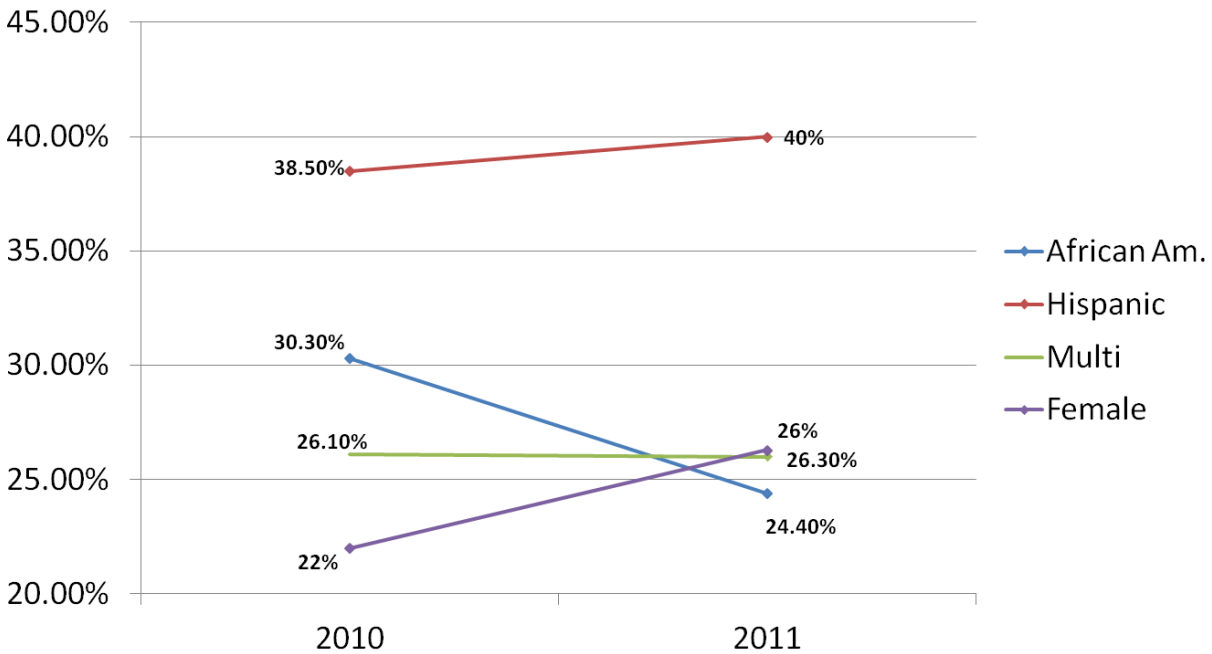
CEAS-URM Admit Data (Admit data as of January 27 of each year)



Female Admits



CEAS URM and Female Yield Data



Comments and Discussions:

Dr. Joseph Slater mentioned that the Wright State University Student Chapter of Society of Women Engineers (SWE) runs a Woman in Engineering Day for high school students. WMU's SWE has a similar program for elementary/middle-school girls. At WMU, female high-school students can shadow a CEAS

H. Mid-Term Grade At-Risk Student Intervention Pilot

A pilot project was implemented in Spring Semester 2012 in which cumulative GPA and mid-term grade report are used to *proactively* identify at-risk students for intervention. The target populations are first-year students, returning sophomores, and transfer students whose cumulative GPA falls between 1.50 and 1.99 and who reside on campus.

In the pilot, the Residence Life Assistant Director ran a report to identify the targeted students. The STEP Program Director and a STEP Graduate Assistant (GA) used the list to contact students (by e-mail, Facebook, phone) and set up appointments. The STEP-GA met with the first-year and transfer students, and the CEAS Associate Dean for Undergraduate Programs & Assessment met with the returning sophomores, and they conducted triage to determine why the students were encountering academic difficulties (time management; study habits; critical course[s]; non-academic issues). They then made specific recommendations about academic success strategies [keep a study log; use Student Success Centers; join student societies; use Kahn Academy to understand math/science problems; and make appointment with Counseling Center]. The students were also asked to give their instructors the Mid-Term Grade Report form to be returned to CEAS Advising by March 1. The STEP Program Director and GA followed up with students as needed. Using the Spring 2012 Mid-Term Grade Report, the CEAS Associate Dean sent an e-mail of congratulation to students whose mid-term grades are "C" or better. Students with mid-term grade below "C" were advised to make appointment with

their academic advisors before the last day to withdraw from courses to determine the proper course of action:

- Determine if student should withdraw from failing course
- Connect student with tutors/Engineering Peer Mentors
- Re-structure student's fall 2012 schedule
- Suggest potential summer class(es) to get students back on track

Comments from students about the pilot are very positive. More about the pilot in the planning portion of meeting below.

2. Planning

A. Mid-Term Report At-Risk Student Intervention Pilot

Background

A pilot project was implemented Spring 2012 in which cumulative GPA and mid-term grade reports were used to *proactively* identify at-risk students for intervention. The target populations are first-year students, returning sophomores, and transfer students whose cumulative GPA falls between 1.50 and 1.99 and who reside on campus. Two factors affecting how the target student populations are chosen are:

- The number of students that two CEAS advisors can meet with during the five-day window between the last day for submitting mid-term grades and the last day to withdraw class
- The chance a student realistically has to turn around academic standing

Freshmen CEAS Students Midterm Grade Profile Based on Number of Classes Reporting Midterm Grades

GPA Range	Fall 2011		Fall 2010		Fall 2009	
	Minimum 1 class	At least 50% of classes	Minimum 1 class	At least 50% of classes	Minimum 1 class	At least 50% of classes
0.00-0.50	13	7	10	6	6	4
0.51-1.00	13	11	27	20	9	6
1.01-1.50	34	22	45	37	27	14
1.51-2.00	41	31	59	47	38	25
2.01-2.50	61	56	76	57	74	57
2.51-3.00	83	71	87	71	91	64
3.01-3.50	66	62	70	56	75	56
3.51-4.00	92	57	39	26	40	29
Total	403	317	413	320	360	255

In addition, there are 16 returning sophomores and 10 transfer students who lived on campus whose fall 2011 cumulative GPA is between 1.50 and 1.99.

In the pilot, the Residence Life Assistant Director ran a report to identify the targeted students. The STEP Program Director and a STEP Graduate Assistant (GA) used the list to contact students (by e-mail,

Facebook, phone) and set up appointments. The STEP-GA met with the first-year and transfer students, and the CEAS Associate Dean for Undergraduate Programs & Assessment met with the returning sophomores. Both conducted triage to determine why the students were encountering academic difficulties (time management; study habits; critical course[s]; non-academic issues). They then made specific recommendations about academic success strategies [keep a study log; use Student Success Centers; join student societies; Kahn Academy to understand math/science problems; and make appointment with Counseling Center]. The students were also asked to give their instructors a Mid-Term Grade Report form to be returned to CEAS Advising by March 1. The STEP Program Director and GA followed up with students as needed. Using the Spring 2012 Mid-Term Grade Report, the CEAS Associate Dean sent an e-mail of congratulation to students whose mid-term grades are “C” or better. Students with mid-term grade below “C” were advised to make appointment with academic advisors before the last day to withdraw course to:

- Determine if student should withdraw from failing course
- Connect student with tutors/Engineering Peer Mentors
- Re-structure student’s fall 2012 schedule
- Suggest potential summer class(es) to get students back on track

Planning Questions:

- A. Should the student target population be expanded or revised?
- B. Should the Advising Director of each college be given the discretion to extend the last day to withdraw course for a limited number of students as a pilot to improve student success and retention?

Factors to consider in extending the last day to withdraw course

- A. Presently, there are five business days between the last day for submitting mid-term grade and the last day to withdraw course. In addition, academic advisors are also meeting with students to plan for course registration for the next semester. This effectively reduces the opportunity a student has to meet with an advisor to discuss whether to withdraw from a course.
- B. Dr. Robert Eversole, Chair of Hardship Panel that reviews application for withdrawal of courses past the student-initiated withdrawal period, was consulted about a pilot to extend the advising directors the discretion to extend the last day to withdraw course. Dr. Eversole says he has no objection to any initiative by the Provost to support student success and retention such as the proposed pilot.

Comments and Discussions:

Dr. Daina Breidis suggested conducting a focus group of students who were successful as well as unsuccessful to learn their views about the pilot.

Dr. Joseph Slater said the practice at Wright State University is that students cannot register for classes if their semester GPA <2.00 without first meeting with an advisor. Dr. Slater also suggested sending a letter to all students with semester GPA <2.00.

STEP Advisory Board Recommendations:

- i. Extend the GPA range to 2.50 and keep the floor at 1.50 for the student population to be engaged in intervention.
- ii. Engage the Undergraduate Studies Council of the Faculty Senate about a pilot to allow Advising Director the discretion to extend the deadline to withdraw from a course.

- iii. Check with the Registrar, Carrie Cumming, about granting the STEP Principal Investigator to view the mid-term grades of critical STEP courses (e.g., mathematics, chemistry, physics, and some engineering courses).
- iv. Encourage faculty to using e-Learning to post grade and teach students how to use e-learning for checking their grade, which would allow students to see their performance in real time.

B. How to stay connected with students in good academic standing who did not return to WMU and are attending community colleges?

Background

With the support of the Office of Student Academics and Institutional Research (using the National Student Clearinghouse data base) and using Facebook, 13 students from the 2010 STEP Cohort who are in good academic standing (cumulative GPA \geq 2.00) and who did not return to WMU in Fall 2011 have been identified to be attending a community college near their home towns – see table below. [The 13 students who transferred to a community college included one student whose personal information is blocked and is not included in the table below.]

Non-Returning Students with GPA \geq 2.00 Who Transferred to a 2-year Institution

	GPA	Last Term at WMU	1st School	2nd School	Proximity to 1st/2nd School	Distance from WMU	Source
Student 1	2.62	Spring 2011	Oakland Community College		15 Miles	152 Miles	Office of Institutional Research
Student 2	2.89	Fall 2010	Mott Community College	Univ of Michigan, Flint	21 Miles/22.8 Miles	151 Miles	Office of Institutional Research
Student 3	2.96	Fall 2010	Grand Rapids Community College		9 Miles	46 Miles	Office of Institutional Research
Student 4	2.98	Spring 2011	Oakton Community College		5 Miles	160 Miles	Office of Institutional Research
Student 5	3	Fall 2010	Grand Rapids Community College		14 Miles	42 Miles	Office of Institutional Research
Student 6	3.43	Spring 2011	Lansing Community College		41 Miles	113 Miles	Office of Institutional Research
Student 7	3.71	Spring 2011	Elgin Community College	Northern Illinois University	5 Miles/39 Miles	186 Miles	Facebook
Student 8	3.82	Spring 2011	Mid Michigan Community College	Lansing Community	15 Miles/83 Miles	149 Miles	Office of Institutional Research
Student 9	3	Fall 2010	Grand Rapids Community College		14 Miles	42 Miles	Facebook
Student 10	3.16	Spring 2011	Grand Rapids Community College		10 miles	62 Miles	Facebook
Student 11	2.35	Spring 2011	Lansing Community College		38 Miles	95 Miles	Facebook
Student 12	2.2	Spring 2011	Henry Ford Community College		17 Miles	139 Miles	Facebook

Another seven students from the 2010 STEP Cohort transferred to 4-year institutions, most of which are closer to their home as well.

Non-Returning Students with GPA \geq 2.00 Who Transferred to a 4-year Institution

	GPA	Last Term at WMU	1st School	2nd School	Proximity to 1st/2nd School	Distance from WMU	Source
Student 1	3.02	Spring 2011	Michigan Technological		164 Miles or 532 Miles	60 Miles	Office of Institutional Research
Student 2	3.46	Fall 2010	William Rainey Harper College	Univ of Iowa	6 Miles/222 Miles	172 Miles	Office of Institutional Research
Student 3	3.71	Fall 2010	Lawrence Technological		55 Miles	198 Miles	Office of Institutional Research
Student 4	3.85	Spring 2011	Univ of Illinois		26 Miles	161 Miles	Facebook
Student 5	2.12	Fall 2010	Michigan State University		5 Miles	82 Miles	Facebook
Student 6	2.04	Spring 2011	Univ of Alaska-Anchorage		5 Miles	3700 Miles	Office of Institutional Research
Student 7	2.33	Fall 2010	Harold Washington College		8 Miles	148 Miles	Office of Institutional Research

Planning Questions:

- A. What strategies should be implemented to engage the 13 students from the 2010 STEP Cohort who are enrolled in a community college?
- B. Which other WMU office(s) should be involved with CEAS in reaching out to these students?

Factors to consider in engaging the community college students:

- A. Kalamazoo Valley Community College does not report to the National Student Clearinghouse so we are unable to determine if any of the 2010 STEP Cohort has transferred there. What strategy can be implemented to identify students who might be attending KVCC and to engage them?
- B. Are there existing WMU protocols or procedures that have proven effective in engaging former students?

Comments and Discussions

Dr. Slater said Wright State University uses LinkedIn to connect with former and upper division students about Co-Op and internship opportunities. LinkedIn may or may not be the appropriate tool to connect with first-year students who do not return.

Dr. Breidis said at MSU, the Admissions Office is responsible for contacting former students. She also inquires if the National Student Clearinghouse identifies the student's major.

STEP Advisory Board Recommendations

- i. Ask the Provost to inquire why Kalamazoo Valley Community College does not participate in the National Student Clearinghouse and encourage KVCC to participate.

- ii. Send a letter to the students at community college and provides a roadmap to transfer courses from the community college back to WMU.

**Western Michigan University Next STEP Learning Community:
A Collaboration between Academic and Student Affairs to Improve Student Success**

**Next STEP Student Survey Fall 2011:
Highlights**

Prepared by Dr. Robert Ruhf, Science and Mathematics Program Improvement (SAMPI),
Mallinson Institute for Science Education, January 2012

As part of the external evaluation of the STEP Learning Community collaboration program, funded by the National Science Foundation, participating students were surveyed in late fall 2011 about their first-semester experiences in the university and the program. In total, 272 students were placed into 14 learning communities. Completed surveys were received from 207 students, a 76% response rate. Highlights from the Fall Survey results follow.

Section I: Respondent Description

Students were asked to identify gender, residence, first-generation college status, and whether and how many hours they worked. Summary information follows.

Table 1. Student Characteristics

Female	First-Generation	Engineering House	Employed
22 11%	42 20%	92 44%	45 20%

- Female students were somewhat more likely than male students to be first-generation college students – 36% compared to 18% – but the difference was not statistically significant.
- A slightly higher percentage of males than females live in Engineering House – 46% to 27% – but the difference was not statistically significant.
- Male students were slightly more likely to be employed (22%) than female students (18%), but the difference was not statistically significant. Mean weekly hours of work were slightly more for men than for women – 13.5 to 10.4.

Section II: Student Experiences and Outcomes

Table 2. Ease of Transition Tasks

Response scale was 1 = very difficult; 3 = about average; 5 = going smoothly. (*) indicates statistical significance.

	2006	2007	2008	2010	2011
a. “Life” management: eating and sleeping regularly; doing laundry; paying bills on time, etc.*	3.8	4.0	4.1	4.1	4.2
b. “School” management: getting to classes regularly and on time; keeping up with studies	3.5	3.7	3.7	3.7	3.5
c. Making new acquaintances: meeting and talking with people in social situations	3.8	4.1	4.0	4.0	4.0
d. Meeting other students: identifying people to check in with about classes, study with, attend co-curricular activities with	3.8	3.9	3.9	3.9	3.9

- A steady increase in the mean rating from year to year has been observed for “Life” management tasks.
- Mean ratings have remained fairly consistent over the years for the remaining items.

Table 3. Most Challenging Courses of First Semester

(*) indicates statistical significance.

Survey Year	Mathematics	Chemistry	Engineering*	IME 1020	IME 1420
2007	56%	24%	7%	--	--
2008	57%	27%	9%	--	--
2010	57%	22%	8%	--	--
2011	57%	25%	15%	22%	5%

- Mathematics continues to be the greatest challenge.
- A relatively small percentage of students seek tutoring for these courses. In 2011, a total of 89, or less than half of students (43%), reported having used a tutor (see Table 7). Only 34% sought a tutor for math and 7% for chemistry.

Table 4. Students’ Academic Habits (Contributors and Obstacles to Success)

(*) indicates statistical significance.

<i>Which of these helped you be successful?</i>				<i>Which of these kept you from being successful?</i>			
Item:	2008	2010	2011	Item:	2008	2010	2011
Attended class regularly*	78%	89%	89%	Didn’t attend class regularly	12%	9%	8%
Managed my time well*	47%	56%	55%	Poor study skills	38%	38%	31%
Helpful professor(s), mentor*	38%	55%	39%	Noisy residence environment	19%	19%	19%
Did all reading, homework*	47%	57%	57%	Didn’t study enough	54%	49%	45%
Motivation, persistence	48%	52%	51%	Friends, sports, social activity	38%	35%	38%
Helpful TA, tutor, resources*	34%	46%	36%	Didn’t know how to get help	11%	9%	6%
Studied w/ other students*	47%	57%	58%	Poor time management	35%	37%	37%
Support from family, friends	51%	53%	53%	TV, video games, Facebook	47%	44%	50%
I wasn’t very successful	11%	6%	7%	Nothing; I was successful	8%	12%	9%

- The most frequently identified contributor to academic success was *attending class regularly*. The most frequently identified obstacle was *TV, video games, Facebook* in 2011 and *didn’t study enough* in 2008 and 2010.
- Although important, class attendance alone was not sufficient – for example, 89% of students reported regular attendance in 2011, but only 78% reported that they had a “C” or better in all their classes.

➤ Statistically significant differences across years were found for several contributors to success, with the higher percentages occurring in 2010 and/or 2011. This may indicate that students have placed a greater emphasis on these factors over the last couple years.

Table 5. Hours Spent Per Week on “School” Management

Less than 5 hours	6-10 hours	11-20 hours	21-29 hours	30 or more hours
5 2%	44 21%	84 41%	57 28%	17 8%

Table 6. Indicators of Student Involvement and Success

Indicators	Registered with BroncoJOBS	Participate in engineering-related RSOs	“C” or better in all courses	Checked mid-term grade on GoWMU
positive responses	128 62%	80 39%	162 78%	196 95%

➤ Students who spent more hours per week on “School” management were more likely to report that they have a “C” or better in all their classes. This difference was statistically significant.

➤ Female students were more likely than males to register with BroncoJOBS (76% to 61%) and were more likely to report having a “C” or better in all their classes (95% to 78%), but neither difference was statistically significant.

➤ In addition, female students were also more likely than male students to report participating in engineering-related student organizations (62% to 37%), which *was* a statistically significant difference.

Table 7. Outcomes of STEP Participation

Response scale was 1 = Strongly Disagree; 3 = Uncertain; 5 = Strongly Agree. (*) indicates statistical significance.

	2005	2006	2007	2008	2010	2011
a. I know at least 6 STEP students in my classes.*	4.4	4.0	4.1	3.9	4.4	4.3
b. I have studied with other STEP students.*	3.8	3.5	3.8	3.5	3.9	3.9
c. I check my wmich.edu email account daily.*	4.0	4.0	4.1	4.3	--	--
d. I read and respond to emails from my faculty mentor.*	--	--	--	--	3.8	3.6
e. I participated in one or more activities my mentor has invited me to.*	--	--	3.1	2.6	3.4	3.4
f. I know where to get tutoring for core courses.*	3.5	3.7	3.8	3.7	4.0	4.0
g. I have used a tutor.	2.5	2.8	2.5	2.3	44%	43%
h. “I have used the Student Success Center in Bigelow Hall” (2010) or “I have used a Student Success Center” (2011).*	--	--	--	--	2.3	3.0
i. I know who my mentor is.*	--	--	3.5	2.8	--	--
j. My mentor is _____.	--	--	--	--	76%	70%

- For 2011, mean ratings were highest for “I know at least 6 STEP students in my classes” and lowest for “I have used a Student Success Center.”
- For 2011, students from the 14 cohorts varied in their ability to correctly identify their mentor from 0% to 100% – with 1 group reaching 100%, 5 groups reaching between 90-95%, 4 groups reaching between 70-80%, 2 groups reaching between 55-60%, and 1 group reaching 23%. There was 1 group for which none of the students were able to identify their mentor.
- Some mentors were not the instructors of an anchor class. For 2011, we found that 77% of students correctly identified mentors who were also instructors, while 68% correctly identified non-instructional mentors. This was *not* a statistically significant difference in identification. There was no difference in how much students from the two conditions valued having a faculty mentor (Table 8, item c below).
- Statistically significant differences across years were found for several items, with the higher values/percentages occurring most often during the later years. This may indicate an increase in the program’s success over time (students in 2011 better knew where to get tutoring, studied more with other STEP students, participated more often in activities their mentor invited them to, etc.).

Table 8. Value of STEP Learning Community Components

Response scale was 1 = low value; 5 = high value. (*) indicates statistical significance.

Component	2005	2006	2007	2008	2010	2011
a. cohort/group enrollment	3.7	3.6	3.8	3.7	3.8	3.8
b. finding a study group	3.5	3.5	3.5	3.5	3.6	3.7
c. faculty mentor*	3.1	3.5	3.4	3.5	3.5	3.2
d. co-curricular activities	3.1	3.4	3.2	3.2	3.2	3.2
e. tutoring	3.1	3.2	3.2	3.3	3.3	3.6
f. living in Engineering House (n=167 in 2011)				3.9	4.2	3.6

Section III: Subgroup Differences

Information from the Fall Survey allowed for the identification of four subgroups of interest – women, first-generation students, students in an engineering residence hall, and working students. University data allowed us to identify students’ race/ethnicity and their first mathematics course placement. Numerical and some categorical data from the survey were disaggregated by those subgroups to test for statistically significant differences.

The table of subgroup comparisons (Table 9) is found on the next page.

Table 9. Six Subgroup Comparisons

	All Ss n = 207	Gender F = 22	First- Gen n = 42	Residence EH = 92	Employed Students n = 45	Race/ Ethnicity Min = 22 ^	ACT Math [◇] M3 = 86
1 – Gender	11% F		--	--	--	--	--
2 – Residence (EH/nonEH)	44% EH	--	--		--	--	--
3a, 3b – Employed	22%	--	--	--		--	--
3c – Hours worked/wk	13.2	--	--	--		--	14.1 ^{Not} M3*
4 – First Gen	20%	--		--	--	41% _{MIN} *	--

5a – Life Mgt	4.2	--	--	--	--	--	--
5b – Schl Mgt	3.6	4.2 _F *	--	--	--	--	--
Schl Mgt hours - <10	23%	--	--	--	--	--	--
Schl Mgt hours – 11-20	41%	--	--	--	--	--	--
Sch Mgt hours - >20	36%	--	--	--	--	--	--
6a – Social acquaintances	4.0	--	--	4.1 _{EH} *	--	--	--
6b – Meet other students	3.9	--	--	--	--	--	--
6c – Attend co-curricular activities	3.8	--	--	--	--	--	--
7a – Know 6 STEP Ss	4.3	--	4.3 _{Not FG} *	4.4 _{EH} *	--	--	--
7b – Study w STEP Ss	3.9	--	--	--	--	--	--
7c – Resp mentor emails	3.6	--	--	--	--	--	--
7d – Part mentor activity	3.4	--	--	3.6 _{EH} *	--	--	--
7e – Can find tutoring	4.0	--	--	--	--	--	--
7f – Used SSC	3.0	--	--	3.4 _{EH} *	--	--	--
8 – ID mentor	70%	--	--	--	--	75% _{Not MIN} *	81% _{M3} *
9 – Reg w/ BroncoJOBS	62%	--	--	--	--	--	--
10 – Participate in RSO	39%	37% _F *	--	--	--	--	--
11- Check midterm grade	95%	--	--	--	--	--	--
12 – “C” or better in all	78%	--	--	--	--	--	--
14 – Used a tutor	43%	--	--	--	--	--	--
17 – Return to current major	85%	--	--	--	--	--	--
18a – Cohort enroll	3.8	--	--	--	--	--	4.0 _{M3} *
18b – Study group	3.7	--	4.0 _{FG} *	--	--	--	--
18c – Mentor	3.2	--	--	--	--	--	--
18d – Co-curr activities	3.2	--	--	--	--	--	--
18e – Tutoring	3.6	--	--	--	--	4.0 _{MIN} *	--
18f – EH living (opt.)	3.6	--	--	4.1 _{EH} *	3.4 _{Not EMP} *	--	--
Total SDs		2	2	5	1	3	3

^ Race/ethnicity information was not available for 14 respondents.

* Difference between subgroups was statistically significant at $\alpha \leq 0.05$. Highest subgroup’s value is shown.

◇ Definitions – M1: ACT Math = 15-23; M2 = 24-26; M3 = 27-35. Data was not available for 14 respondents.

➤ **Engineering House Residence is a Programmatic Strength:** For last year's (2010) administration of the Fall Survey, there were 12 statistically significant differences in responses between Engineering House students and those in other on-campus residences, suggesting either that this special housing option attracts a different kind of student or that the space and its programming have become a relatively strong intervention. However, there were only 5 statistically significant differences in responses for the current year's (2011) administration. Nonetheless, this is still more differences than what was found for each of the remaining subgroups and continues to suggest that the special housing option remains a relatively strong intervention.

□ Based on Table 9, it is clear that residents of Engineering House are more likely to have used a Student Success Center than non-residents. Engineering House residents are also more likely to have an easier time making acquaintances, are more likely to know at least 6 STEP students in their classes, and are more likely to participate in one or more activities their mentors have invited them to.

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