



Sometimes a Step Forward Requires a Step Sideways
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Where We Began – Summer 2013

Campus Strategic Plan

- Redesign high-volume courses through integration of new technology and modified teaching methods to enhance student learning
- Four-year target: Increase calculus success by 7%
- One of three funded strategic plan initiatives on campus

Historic Success Rates

From Winter 2004 to Spring 2015:

Calculus I: 68.35% pass rate

Calculus II: 79.50% pass rate

Calculus III: 74.05% pass rate

Does Calc I Success Predict Calc II Success?

Calc II Grade	A	B	C	D	F	WD	HR
A in Calc I	75.25%	17.61%	4.81%	0.39%	0.78%	0.54%	0.62%
B in Calc I	30.77%	38.28%	21.25%	3.29%	2.10%	2.18%	2.13%
C in Calc I	5.77%	22.52%	36.84%	12.11%	9.53%	6.05%	7.18%

Grade in Calc I	Calc II Pass Rate
A	97.67%
B	90.31%
C	65.13%

Since Spring 2004, students who pass Calc I have passed Calc II on the first try **82.65%** of the time.

What About Unsuccessful Calc I Students?

Second Attempt	A	B	C	D	F	WD	HR
First Attempt: D	2.70%	27.36%	42.00%	17.53%	8.09%	1.93%	0.39%
First Attempt: F	0.62%	10.91%	24.90%	22.22%	32.92%	8.23%	0.20%
First Attempt: WD	1.27%	8.90%	28.81%	14.83%	30.09%	13.98%	2.12%
First Attempt: HR	1.23%	8.59%	34.36%	18.40%	24.54%	9.20%	3.68%

First Attempt	Pass Rate on Second Attempt
D	72.06%
F	36.42%
WD	38.98%
HR	44.17%

Can Underperforming Calc I Students Be Identified Early?

Fall 2013	A, B, C after E2	D after E2	F after E2	Total
Total Students	364	49	55	468
Passed (A, B, C)	299	4	0	303
Failed (D, F)	63	33	31	127
Withdrew	2	12	24	38

Fall 2014	A, B, C after E2	D after E2	F after E2	Total
Total Students	342	35	51	428
Passed (A, B, C)	292	3	2	297
Failed (D, F)	48	32	36	116
Withdrew	2	0	13	15

Success for Calculus

- 4 credit hour course (3 lecture, 1 lab)
 - Same as Math 1214
- Course Description:

This course focuses on the use of college algebra and trigonometry skills within the context of calculus, providing students with the opportunity to improve their preparedness for future calculus coursework.

Success for Calculus

- Only offered pass/fail
- Begins at the end of Week 8
- Meets at the same times as Calculus I lectures
 - Fall 2015: 4 sections
 - Spring 2016: 3 sections
- Blended course

Success for Calculus

- Calculus I students with a grade below 65% after Exam 2 who have participated in Calc I are strongly encouraged (but not required) to take the success course.
- Replaces Calculus I on schedule and transcript.
- Students are only allowed to take Success for Calculus one time, regardless of outcome.
- Successful completion is not prerequisite to retaking Calculus I

Student Success Activities

- Goal-Setting (collaboration with the Student Success Center)
- Diet and Exercise Activity
- Test Anxiety (collaboration with Counseling, Disability Support, and Student Wellness)

Feedback from Students

Goal-Setting Activity:

“During my Student Success Center session, my mentor suggested that I write a very specific goal for an upcoming test. He particularly wanted me to set a realistic letter grade to aim for and how to achieve it. This made me nervous because I’m afraid of setting expectations for myself; I’m afraid of disappointing myself.”

Feedback from Students

Test Anxiety Workshop:

“I learned to face my anxiety and to address the problem rather than worry about it approaching and bringing me down each time. This presentation helped me and I am grateful. This semester, I realized what this school is all about.”

Feedback from Students

Test Anxiety Workshop:

“I learned three things that contribute to my test anxiety: expectations, negativity, and lack of preparation. These three variables all relate to reasons to why I get so nervous about taking tests. By taking the time to reflect on them, I can find reasons as to why I feel that way and how I can eliminate them and better prepare myself for tests.”

Feedback from Students

Test Anxiety Workshop:

“Our visit with Stephanie Martensen gave me a much better idea of what it means to really let stress and anxiety get the best of you. It opened my eyes and made me realize how often I balance on the edge of letting anxiety get the best of me. I now also have ideas for how to remain on the right side of stress and still be able to do well in my classes.”

Feedback from Students

Test Anxiety Workshop:

“I think that the presentation was very beneficial because it not only allowed me to get a better understanding of what test anxiety is and how it affects you, but also because it helped me realize some of my own negative attitudes and how I can help deal with them.”

Feedback from Students

Diet and Exercise Activity:

“One of the main things I want to focus on is being able to manage my time well enough to work out more. When I am able to get a quick run or even walk in, I am able to reduce stress.”

Feedback from Students

Diet and Exercise Activity:

“Downloading the app to track my calories, and the pedometer together made me make decisions ‘just because.’ I got out of class early and instead of waiting for the E-Bus to take me to Miner Village, I walked. I would have never have done that before. Maybe I would have thought it (because I have before) but I’ve always pushed it out of my mind. I actually did it. I chose NOT to grab seconds. Thank you.”

Feedback from Students

Diet and Exercise Activity:

“I'm trying to work on basically EVERYTHING. I need to excersize more, eat better, and get out more. I have been working on it already, but I am still lacking. The progress I have made however has managed to help rid myself of my near constant stomach pains.”

Lessons Learned

- We need more than one day per week of face-to-face contact with these students
 - Will change beginning Fall 2016
- High-stakes exams were counterproductive
 - Will incorporate more frequent, shorter assessments in addition to exams
- Need to structure the course around the calculus topics, not the algebra/trig topics

Success for Calculus – Fall 2015

Calc I Before Midterm: 563 students

Includes students from Math 1208

Stayed in Calc I: 423 students (75.1%)

80.4% of students staying in Calc I passed

Switched to Success: 140 students (24.9%)

S: 81 (57.9%)

U: 55 (39.3%)

WD: 4 (2.8%)

Some Preliminary Results

Fall 2015 Success Cohort: 140 students (81 S, 55 U, 4 WD)

Spring 2016 Status

In Math 1214: 91 (62 S, 29 U)

In Math 1208: 4 (3 S, 1 U)

In Math 1212: 6 (3 S, 3 U)

In Math 1140/1160: 1 (1 S)

In Stat 1115: 1 (1 U)

Enrolled, no math: 22 (9 S, 12 U, 1 WD)

On Co-Op: 1 (1 U)

Study Abroad: 1 (1 U)

Not Enrolled: 13 (3 S, 7 U, 3 WD)

Some Preliminary Results – Exam 1

Cohort	FS15 Count	FS15 Exam 1 Average	SP16 Count	SP16 Exam 1 Average
Whole Class	528	65.64%	458	72.26%
FS15 Success (S)	81	55.74%		
FS15 Success (S) Retaking in SP16	62	56.32%	62	76.61%
FS15 Success (U)	55	51.09%		
FS15 Success (U) Retaking in SP16	29	51.75%	29	67.86%
FS15 1214 (D) Retaking in SP16	19	62.94%	19	74.63%
FS15 1214 (F) Retaking in SP16	10	59.36%	10	69.45%

Some Preliminary Results – Exam 2

Cohort	FS15 Count	FS15 Exam 2 Average	SP16 Count	SP16 Exam 2 Average
Whole Class	518	65.69%	449	69.07%
FS15 Success (S)	80	48.90%		
FS15 Success (S) Retaking in SP16	60	49.51%	60	77.21%
FS15 Success (U)	53	42.25%		
FS15 Success (U) Retaking in SP16	28	44.46%	29	59.13%
FS15 1214 (D) Retaking in SP16	19	63.31%	19	72.47%
FS15 1214 (F) Retaking in SP16	11	52.90%	11	66.81%

Redesign Team

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Any Questions?

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