University of San Diego
Rick Olson & Susan Lord



University of San Diego
ENGINEERING PROGRAMS

Who Are We?

USD

- Private, Independent, Catholic, Liberal Arts University
- ~ 5000 Undergraduate Students
- Small Classes
- Ethical Conduct & Compassionate Service are Core Values

Engineering at USD

- Undergraduate Programs in EE, ISyE, and ME
- ~147 Semester Units with 40+ Units of Liberal Arts Classes
- Dual BS/BA degree
- Common First Two Years
- ~240 students, 15 faculty
- Ranked 21st by US News and World Report
- You don't declare majors when entering USD

First Year Sequence

Engineering 101 – Introduction to Engineering

- 105 Students in Fall 2010 (~ 75% Incoming Freshmen)
- Lecture/Lab
- Survey of Engineering and Disciplines
- Problem Solving w/Excel
- Introductory Graphics
- Weekly LEGO NXT-based Design Lab

Engineering 102 – Introduction to Design and Practice

- Biweekly 2 hour labs
- Topics in EE, ISyE, ME
- Semester-long NXT Design Project w/Documentation

Our Variation of Engr. Math

- Supplemental math refresher
- One hour/week
- Very hands-on
- "Weekly" HW and Quizzes

	Cohort 1 Fall 2009	Cohort 2 Spring 2010	Cohort 3 Fall 2010	Cohort 4 Spring 2011
Linear & Quadratic Equations	X			
One Link Robot	X		X	X
Two Link Robot	X		X	X
Laws of Sines and Cosines	X		X	X
Vectors	X		X	X
Complex Numbers	X		X	X
Simultaeous Equations	X		X	X
Sinusoids	X		X	X
Derivatives		X	X	X
Integration		X		
Differential Equations		X		

Entering Math Classes – True Freshmen

	Coll Alg	Calc I	Calc II	Calc III	Total
FA09					**73**
2009.09		5	2	1	8
2010.1		1	2		3
No Engr Math	1	24	23	14	62
FA10					
2010.9		7	2		9
2011.2	1	2	1	1	5
No Engr Math	8	26	18	6	58

Summary of Engr 294 Offerings

	# Students	SAT-Math	How Identified
FA09			
Cohort 1	8		Self-Selected
Cohort 2	3		Self-Selected
No Engr Math	62		
FA10			
Cohort 3	10	593	SAT-Scores
Cohort 4	5	617	Self-Selected
No Engr Math	58	645	

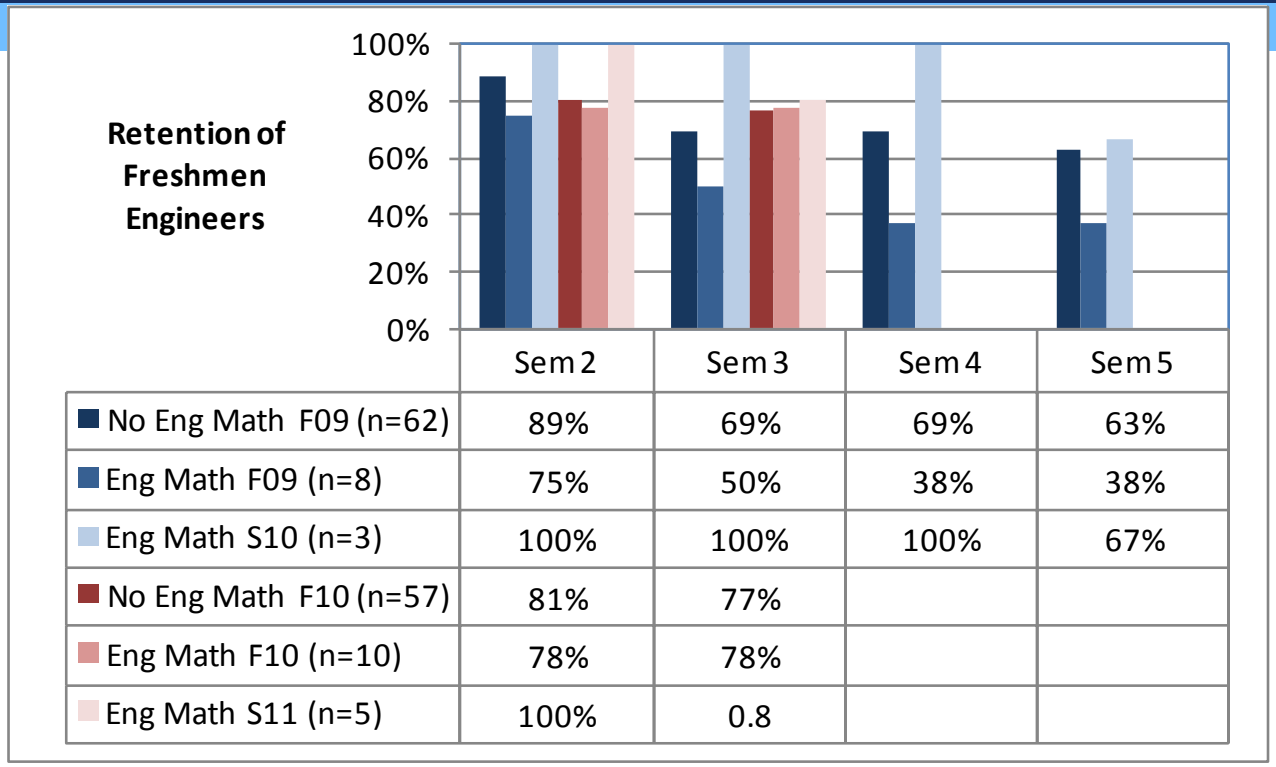
How you think this class helped your ability to solve problems related to each course topic on...

Statistic	One Link Robot	Two Link Robot	Laws of Sines and Cosines	Vectors	Complex Numbers	Sim. Equations	Sinusoids	Derivs
Min Value	1	1	1	1	1	2	2	1
Max Value	5	5	5	5	5	5	5	5
Mean	3.00	3.09	3.36	3.36	3.55	3.82	3.91	3.55
Variance	2.40	1.69	2.25	1.85	1.47	0.96	0.89	1.67
Standard Deviation	1.55	1.30	1.50	1.36	1.21	0.98	0.94	1.29

1 - Class had little impact
5 - I am now much more proficient

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Retention Summary

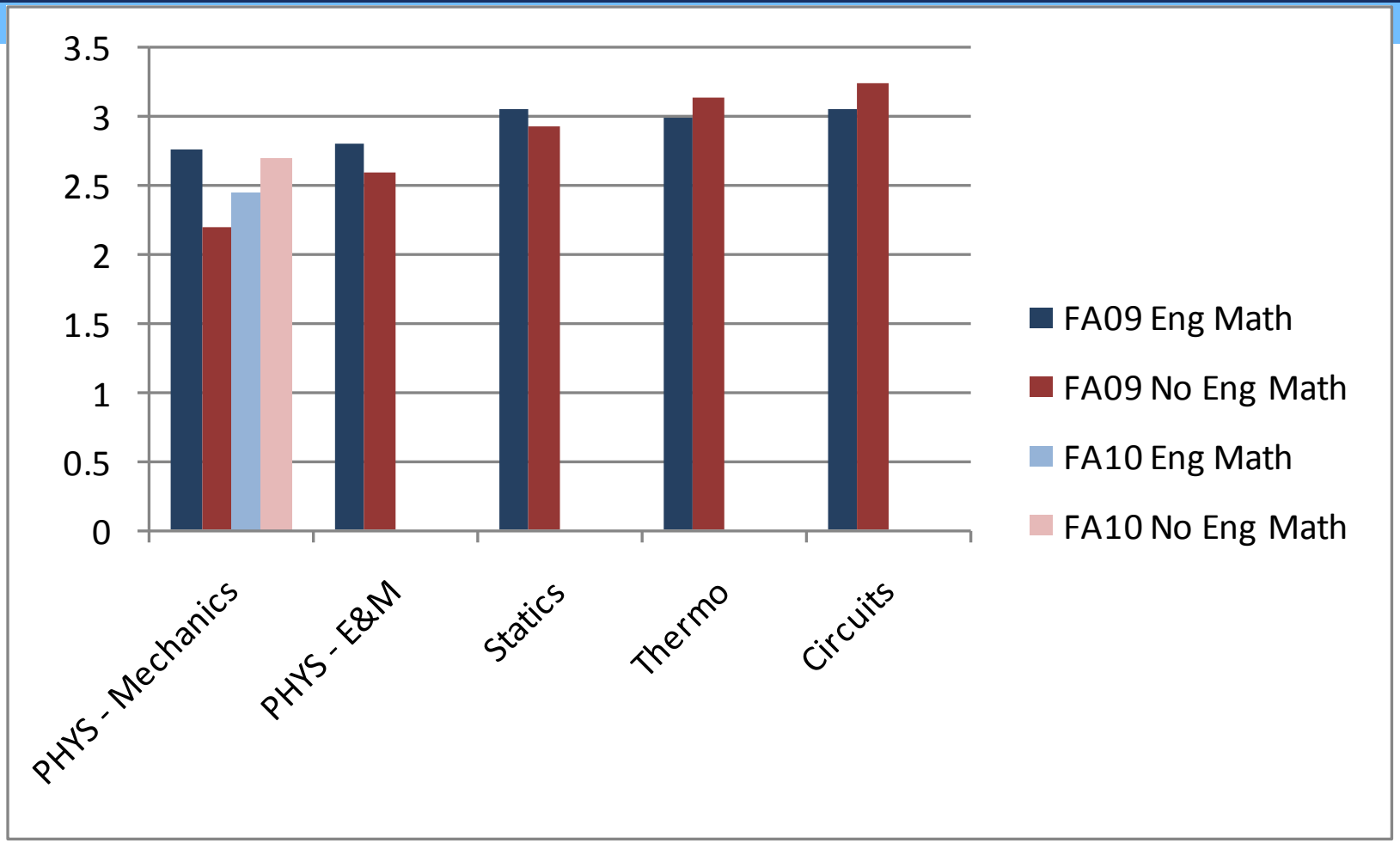


	Sem 2	Sem 3	Sem 4	Sem 5
No Eng Math F09 (n=62)	89%	69%	69%	63%
Eng Math F09 (n=8)	75%	50%	38%	38%
Eng Math S10 (n=3)	100%	100%	100%	67%
No Eng Math F10 (n=57)	81%	77%		
Eng Math F10 (n=10)	78%	78%		
Eng Math S11 (n=5)	100%	0.8		

- No transfer students in F'09 data.
- One transfer in F10 Engr Math Class.
- Semester 5 data is preliminary

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GPA in Core Engineering Classes



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Other Comments from Course Evals

20% of students would like classe to meet 2X/week
20% would not like it to meet more often
60% were indifferent

Some students would like class separated by skill level

Students appreciated the small class size and hands-on aspect