

# **SUPPLEMENTAL INSTRUCTION AT CSM**

## **A PROPOSAL FOR INSTITUTIONALIZATION BEGINNING FALL 2014**

### **Submitted FALL 2013 TO INSTITUTIONAL PLANNING AND BUDGET COMMITTEE**

Presented by The Learning Center, Math Task Force and Lead Faculty for Supplemental Instruction

#### **Mission Statement**

College of San Mateo provides an exceptional educational opportunity to residents of San Mateo County and the Greater Bay Area Region. The college is an open-access student-centered institution that serves the diverse educational, economic, social, and cultural needs of its students and the community. College of San Mateo fosters a culture of excellence and success that engages and challenges students through a comprehensive curriculum of basic skills, career and technical programs, and transfer preparation. It uses analysis of quantitative and qualitative data and information, collaborative integrated institutional planning, and assessment to inform decision-making and ensure continuous improvement. Its programs and services are structured, delivered, and evaluated to prepare students to be informed and engaged citizens in an increasingly global community. To achieve this mission, the college has adopted the following Institutional Priorities:

1. Improve Student Success
2. Promote Academic Excellence
3. Promote Relevant, High-Quality Programs and Services
4. Promote Integrated Planning, Fiscal Stability, and the Efficient Use of Resources
5. Enhance Institutional Dialogue

With a focus on student success, the CSM mathematics department began, in fall 2011, to implement a Supplemental Instruction program. During spring of 2013, the Math Task Force had the opportunity to evaluate the mathematics SI program. Based on CSM's internal data, as well as international data available from the Department of Education, the Math Task Force recommends institutionalization of the SI program. Having recognized the success of the program in mathematics, the Learning Center will launch a pilot program in spring 2014 to bring SI to additional departments.

#### **The Supplemental Instruction Program**

Supplemental Instruction (SI) is an internationally recognized program that uses peer support to improve student retention and success. Most colleges and universities in the U.S. and Canada use the

traditional model of SI developed by Dr. Deanna Martin at the International Center on SI in Kansas City, Missouri, in 1973. This model targets students in historically difficult courses. Students who have successfully completed these difficult courses (mathematics, organic chemistry, biology, etc.) are identified and trained to be SI leaders. Well-trained SI leaders are attached to courses (preferably attached to the professor that they had when they were students) and facilitate 2-3 hour voluntary sessions weekly. In the weekly SI sessions, the SI leaders work with students and use a variety of techniques to maximize learning. To do this effectively, the SI leaders must attend all class lectures, take notes, and act as models to those currently taking the course. The SI model has been adopted by colleges and universities in the United States and internationally.

(see <http://bit.ly/1eM219M>, <http://bit.ly/1guMXOd>, and <http://bit.ly/18fgje6>).

Lena Feinman, third- year tenure-track faculty in mathematics, has attended both national and international conferences on SI and completed training for SI coordinators at University of Missouri-Kansas City in spring 2010. In addition, she developed training materials for both faculty and student SI leaders for the College of San Mateo. She served as the lead faculty overseeing the implementation of the SI program and created the outcomes reports. In addition, Pepper Powell (Instructional Aide II in the Learning Center) and Ron Andrade (Learning Center Coordinator) attended the International SI Conference in June 2012 along with Lena Feinman. Pepper has established a SharePoint site for SI under the Learning Center and has begun training SI students for philosophy, economics, and biology sections.

## Summary of Math SI Results to Date

With funding from the Basic Skills Committee, the mathematics department was able to begin implementation of SI in selected courses in fall 2011. Funding was provided for two years. During these two years eighteen SI leaders were trained, the cumulative number of basic skills sections (Math 811, 802, 111, 112, and 110) attached to SI reached 20, and more than 200 students participated in SI. Over the two years, more and more CSM faculty observed the benefits of the program and requested SI leaders in their classrooms. Students who participated at least one SI session have on average consistently outperformed their peers on unit tests, performed better on the final exam than other students who persisted to the end of the class, and have a lower drop rate than their peers.

(**Appendix 1**, at the end of this document, contains summary outcomes from the mathematics SI program over 4 semesters; **Appendix 2** contains excerpts from current and previous SI leaders' reflections about the impact of SI on their college careers)

Examples of SI support and training materials can be obtained from Lena Feinman upon request. Access to materials and information posted on the Learning Center SharePoint site may be requested from Pepper Powell.

## Plan for Institutionalization

With support from BSI, SI has had a significant impact in basic skills math classes. Mathematics faculty would like to expand SI to include the algebra and transfer sequences. Faculty in biology, chemistry, economics, English, ESL, history, philosophy, physics, and political science have also expressed interest incorporating SI into their courses. The Learning Center will oversee an initial extension of the program in spring 2014 to include economics, philosophy and anatomy.

BSI's three year support of SI ends with the 2013/14 academic year. In view of the success of the SI program, the Math Task Force supports this request for institutionalization of SI beginning in fall 2014 with dedicated financing for at least three years as previously reported to IPBC in spring 2013. What follows are budget for one SI leader for one semester in various class configurations, costs for administration and coordination of the SI Program, and a three year budget proposal reflecting incremental growth of the SI program across multiple disciplines with oversight located in the Learning Center.

### **SI Leader Direct Costs: Cost of Supplemental Instruction Leader for One Semester** **SPREADSHEET REPRESENTING EXPENSES OF TRAINING AND EMPLOYING 1 STUDENT SI LEADER** **(Expenses projected reflect the January 2014 student hourly pay and assumes no SI leader absences from classes and full attendance at all weekly meetings and training)**

#### **NOTES:**

based on salary/hr of \$13

**Instructor costs and SI coordinator costs not included**

	<b>Budget: single SI Leader in typical <u>3</u> hour per week class</b>		<b>Budget: single SI Leader in typical <u>5</u> hour per week class</b>		<b>Budget: single SI Leader in typical <u>4</u> hour per week class</b>	
class time	3 hrs week	\$39.00	5 hrs week	\$65.00	4 hrs week	\$52.00
SI sessions	3 hrs week	\$39.00	3 hrs week	\$39.00	3 hrs week	\$39.00
prep	1 hr week	\$13.00	1 hr week	\$13.00	1 hr week	\$13.00
meet w instructor	.5 hr week	\$6.50	1 hr week	\$13.00	1 hr week	\$13.00
ongoing training	<u>1 hr week</u>	\$13.00	<u>1 hr week</u>	\$13.00	<u>1 hr week</u>	\$13.00
<b>Total/week</b>	<b>8.5 hr / wk</b>	<b>\$110.50</b>	<b>11 hr / wk</b>	<b>\$143.00</b>	<b>12 hr / wk</b>	<b>\$130.00</b>
Semester Subtotal	18 weeks	\$1,989.00	18 weeks	\$2,574.00	18 weeks	\$2,340.00
Super review/review: 2 each @ 2 hr	4 hr	\$52.00	\$26.00	\$52.00	\$26.00	\$52.00
training @ 14 hr		\$208.00	\$208.00	\$208.00	\$208.00	\$208.00
<b>average cost per semester/section*</b>		<b>\$2,249.00</b>		<b>\$2,834.00</b>		<b>\$2,600.00</b>

The above spreadsheet represents mathematics SI leaders only and does not include pay to the lead faculty and a classified staff coordinator. As part of institutionalization of Supplemental Instruction, the Math Task Force supports the Learning Center’s request for additional staff to coordinate the campus wide SI program, identification and training of SI leaders, coordination with participating faculty, and data collection and analysis identical to that provided in the appendices. Additionally, the Math Task Force realizes that departments with many sections participating in SI will need a faculty lead to coordinate subject matter specific training of SI Leaders. The costs of lead faculty, staff coordinator and conferences are reflected below.

### Coordinator Costs

Program Service Coordinator (SI Coordinator)	Grade 27		
Salary Range	\$53,472 to \$64,980		
with benefits @ 43.9%	<table border="1"> <tr> <td>\$76,946.21</td> <td>\$93,506.22</td> </tr> </table>	\$76,946.21	\$93,506.22
\$76,946.21	\$93,506.22		

### Faculty Lead Costs

SI Sections within Discipline	Stipend per Semester	with 13% benefits
3	\$200	\$226.00
4 to 6	\$400	\$452.00
7 to 9	\$600	\$678.00
more than 9	multiple coordinators needed	

### Conference Costs

\$3000: Two faculty or staff per year to attend an SI conference at \$3000/per year for travel and per-diem (conference registration to be covered by professional development).

The Supplemental Instruction program has been piloted and ramped up to 11 sections in mathematics. The scope of the program has already been further ramped up with Learning Center oversight to include three new sections in spring 2014 (economics, philosophy and anatomy). The SI program should be in growth mode for several more years. Collectively, across the college, the program should be funded for growth of 5 sections per semester. The following program areas have already requested inclusion in or expansion of presence in SI: Biology, Chemistry, Economics, English, ESL, History, Philosophy, Physics, Political Science and Mathematics (expansion into Algebra and Transfer sequences). As the SI program develops, it will become clear that SI is more successful in some departments or courses compared to others. Therefore, the growth will not be a simple addition of 5 courses each term. Sample plans for both an aggressive growth model and a conservative growth model, with cost of sessions is posted in **Appendix 3**.

In summary, the Math Task Force recommends that the IPBC accept this proposal for institutionalization and growth of the Supplemental Instruction Program at College of San Mateo and

commit funds to sustain the program for a minimum of three years. Total budget requested, including staff, faculty, and student employees for the three years for an aggressive growth model and a conservative growth model are:

Aggressive Growth Model	
AY 14-15	
SI leaders (42 sections)	\$110,253
SI coordinator	\$85,226
Faculty Stipends	\$1,600
Conferences	\$3,000
<b>Total AY 14-15</b>	<b>\$200,079</b>
AY 15-16	
SI leaders (66 sections)	\$169,494
SI coordinator	\$85,226
Faculty Stipends	\$2,000
Conferences	\$3,000
<b>Total AY 15-16</b>	<b>\$259,720</b>
AY 16-17	
SI leaders (88 sections)	\$223,652
SI coordinator	\$85,226
Faculty Stipends	\$5,000
Conferences	\$3,000
<b>Total AY 16-17</b>	<b>\$316,878</b>

Conservative Growth Model	
AY 14-15	
SI leaders (41 sections)	\$107,419
SI coordinator	\$85,226
Faculty Stipends	\$1,600
Conferences	\$3,000
<b>Total AY 14-15</b>	<b>\$197,245</b>
AY 15-16	
SI leaders (55 sections)	\$153,413
SI coordinator	\$85,226
Faculty Stipends	\$2,000
Conferences	\$3,000
<b>Total AY 15-16</b>	<b>\$233,811</b>
AY 16-17	
SI leaders (67 sections)	\$186,953
SI coordinator	\$85,226
Faculty Stipends	\$5,000
Conferences	\$3,000
<b>Total AY 16-17</b>	<b>\$268,479</b>

(Appendices: summary outcomes for several semesters of math SI, comments from current and previous SI leaders, and example Growth Plans start on the next page)

## Appendix 1



### SI Summary Data Fall11, Spring12, Fall12, Spring13

Student counts by Course included in SI: 599 students enrolled in SI sections; more than 200 students participated in SI sessions at least once.

SP13FA12SP12FA11 Final Grades

		Course				
		110	111	112	802	811
SI_Student	Y	71	37	17	83	391

Math 811 Student Success: 75% of students who attended at least one SI session succeeded (earned a pass in the course), while only 51% of students non-SI succeeded.

SP13FA12SP12FA11 Final Grades

		p_np			
		i	NP	P	W
SI_Student	n	0.00	0.42	0.51	0.07
	y	0.01	0.20	0.75	0.04

Math 802, 111, 112, 110 students: 80% of students who attended SI at least once succeeded, while only 61% of non-SI students succeeded (earned a C or higher in the course).

SP13FA12SP12FA11 Final Grades

		Final_Grade					
		A	B	C	D	F	W
SI_Student	n	0.06	0.30	0.25	0.03	0.21	0.15
	y	0.14	0.34	0.32	0.10	0.08	0.03

### Anecdotal Faculty Observations

Participating faculty learn much from interaction with their SI leader as both work toward increasing success amongst their students. Instructor collaboration with SI leaders gives them deeper understanding of their students, new ideas and insights for teaching, and energizes their classroom. This collaboration between faculty and SI leaders is beneficial to faculty, SI leaders and most important to students in the classes.

## **Appendix 2: Excerpts from SI Leader Reflections**

- SI is preparing me for a field in education and it has changed my life forever. The relationship that you have with the student is one of the reasons why SI is so different and more rewarding than tutoring... In SI you don't just give them the answer. You explain it to them step by step and make sure that they understand it... SI has giving me confidence in teaching, learning, communication and other important skills to be successful in life.
- Being an SI leader, I have enjoyed being myself and sharing my knowledge to the students attending the sessions. I have discovered my quality to interact with people and skills to share my knowledge. Helping students better themselves has helped me find my own weakness and better myself.
- First thing I learned was that I could be self-confident in my study approach; that I had skills I hadn't recognized, and that other students were interested in my study skill set, including my sense of responsibility (to myself and the instructor) to schedule and complete homework. I felt responsible for my own education, and I passed that on to other students. I found a leadership skill that I previously had not used.
- We all know the feeling of struggling with a math problem. We all know how frustrating things can get, to the point where we just want to throw something out the window. But when we finally understand the problem, and figure out how the answer, it's as if a huge weight has just come off our shoulders and we can relax. I have always noticed this feeling when it happens, sometimes I can over exaggerate it by doing a happy dance. But, when you're the reason that someone else has this feeling, the reason that they understand the concept, well, for me, that's even better.
- ... I learned a lot about teaching mathematics by attending SI. Since teaching was my goal career, SI provided me with more experience to develop the skills I would hope to have for my future career. This has helped me perform well beyond CSM and given me a unique experience advantage over other students who may not have had the opportunity to work in an SI program. (previous SI leader, currently a senior at CCSF)
- The Supplemental Instruction (SI) Program has impacted me as an SI leader through: (1) increasing my understanding of the social dynamics of a classroom, (2) providing me with a depth of perspective concerning the challenges and the rewards that come with being a peer leader, and (3) encouraging me to remain flexible and be creative in my efforts to help the students who need extra help... I think the most important thing I've learned as an SI Leader is that what you are really modeling to the other students in the class is what a person looks like when they are learn something new.
- The SI program also gave me insight as to what it would take to be a teacher... sometimes, one can feel under-appreciated. Those moments of under-appreciation however, disappear upon the success of a student that worked really hard on homework, quizzes, attended sessions before the test and passed the test with an A or B. When a student or group of students that have come to my sessions after class, stay for most of the session and pass a test, those are the moments that I find the most rewarding.

**Appendix 3a: Example Maximized Growth Plan**

Semester	#	Description	Cost of SI Leaders
Fall 2014:	5	sections with 3 hr./week (1Econ, 1Philosophy, 1Political Science, 2Anatomy)	\$11,245.00
	2	sections with 5 hr./week (English/ESL)	\$5,668.00
	10	sections with 5 hr./week (math)	\$28,340.00
		total	<b>\$45,253.00</b>
Sp 2015:	10	sections with 3 hr./week (2Econ, 2Philosophy, 2Political Science, 2Anatomy, 2Chem)	\$22,490.00
	3	sections with 5 hr./week (English/ESL)	\$8,502.00
	12	sections with 5 hr./week (math)	\$34,008.00
		total	<b>\$65,000.00</b>
<b>AY14-15</b>	<b>42</b>	<b>AY total</b>	<b>\$110,253.00</b>
Fall 2015:	14	sections with 3 hr./week (2Econ, 2Philosophy, 2Political Science, 2History, 2Anatomy, 2Chem, 2Physics)	\$31,486.00
	5	sections with 5 hr./week (English/ESL)	\$14,170.00
	12	sections with 5 hr./week (math)	\$34,008.00
		total	<b>\$79,664.00</b>
Sp 2016:	16	sections with 3 hr./week (3Econ, 3Philosophy, 2Political Science, 2History, 2Anatomy, 2Chem, 2Physics)	\$35,984.00
	5	sections with 5 hr./week (English/ESL)	\$14,170.00
	14	sections with 5 hr./week (math)	\$39,676.00
		total	<b>\$89,830.00</b>
<b>AY16-16</b>	<b>66</b>	<b>AY total</b>	<b>\$169,494.00</b>
Fall 2016:	18	sections with 3 hr./week (3Econ, 3Philosophy, 2Political Science, 2History, 2Anatomy, 4Chem, 2Physics)	\$40,482.00
	7	sections with 5 hr./week (English/ESL)	\$19,838.00
	14	sections with 5 hr./week (math)	\$39,676.00
		total	<b>\$99,996.00</b>
Sp 2017:	26	sections with 3 hr./week (4Econ, 4Philosophy, 2Political Science, 4History, 1Sociology, 1Accounting, 2Anatomy, 4Chem, 2Physics, 2Biology)	\$58,474.00
	7	sections with 5 hr./week (English/ESL)	\$19,838.00
	16	sections with 5 hr./week (math)	\$45,344.00
		total	<b>\$123,656.00</b>
<b>AY16-17</b>	<b>88</b>	<b>AY total</b>	<b>\$223,652.00</b>



### Appendix 3b: Example Conservative Growth Plan

Semester	#	Description	Cost of SI Leaders
Fall 2014:	5	sections with 3 hr./week (1Econ, 1Philosophy, 1Political Science, 2Anatomy)	\$11,245.00
	2	sections with 5 hr./week (English/ESL)	\$5,668.00
	10	sections with 5 hr./week (math)	\$28,340.00
		total	<b>\$45,253.00</b>
Sp 2015:	10	sections with 3 hr./week (2Econ, 2Philosophy, 2Political Science, 2Anatomy, 2Chem)	\$22,490.00
	3	sections with 5 hr./week (English/ESL)	\$8,502.00
	11	sections with 5 hr./week (math)	\$31,174.00
		total	<b>\$62,166.00</b>
<b>AY14-15</b>	<b>41</b>	<b>AY total</b>	<b>\$107,419.00</b>
Fall 2015:	10	sections with 3 hr./week (Econ, Philosophy, Political Science, History, Anatomy, Chemistry, Physics) Number/discipline TBD	\$22,490.00
	4	sections with 5 hr./week (English/ESL)	\$11,336.00
	12	sections with 5 hr./week (math)	\$34,008.00
		total	<b>\$67,834.00</b>
Sp 2016:	11	sections with 3 hr./week (Econ, Philosophy, Political Science, History, Anatomy, Chem, Physics) Number/discipline TBD	\$24,739.00
	5	sections with 5 hr./week (English/ESL)	\$14,170.00
	13	sections with 5 hr./week (math)	\$36,842.00
		total	<b>\$75,751.00</b>
<b>AY16-16</b>	<b>55</b>	<b>AY total</b>	<b>\$143,585.00</b>
Fall 2016:	12	sections with 3 hr./week (Econ, Philosophy, Political Science, History, Anatomy, Chemistry, Physics) Number/discipline TBD	\$26,988.00
	6	sections with 5 hr./week (English/ESL)	\$17,004.00
	14	sections with 5 hr/week (math)	\$39,676.00
		total	<b>\$83,668.00</b>
Sp 2017:	13	sections with 3 hours/week (Econ, Philosophy, Political Science, History, Anatomy, Chemistry, Physics) Number/discipline TBD	\$29,237.00
	7	sections with 5 hr./week (English/ESL)	\$19,838.00
	15	sections with 5 hr/week (math)	\$42,510.00
		total	<b>\$91,585.00</b>
<b>AY16-17</b>	<b>67</b>	<b>AY total</b>	<b>\$175,253.00</b>