

Empowering Student Support Programs Through Data Analytics: A Collaborative Approach at CSUSB

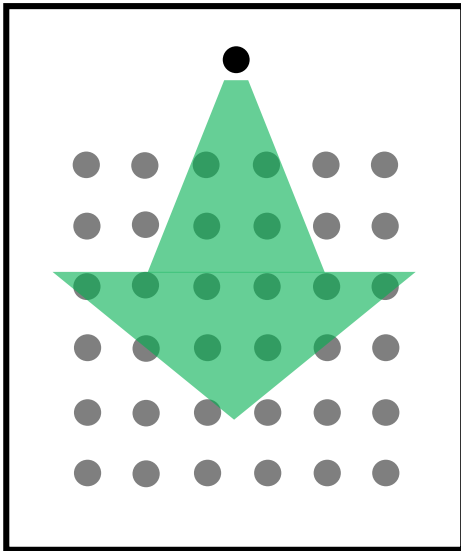
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Tanner Carollo, James Graham

Who are we?



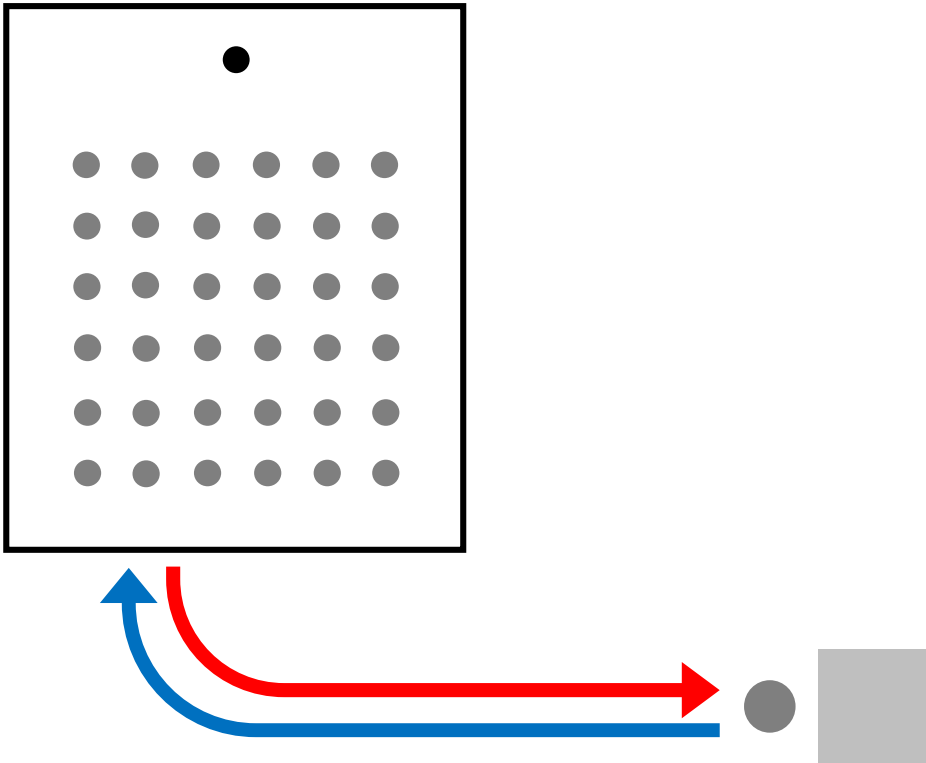
What is SI?

Lecture

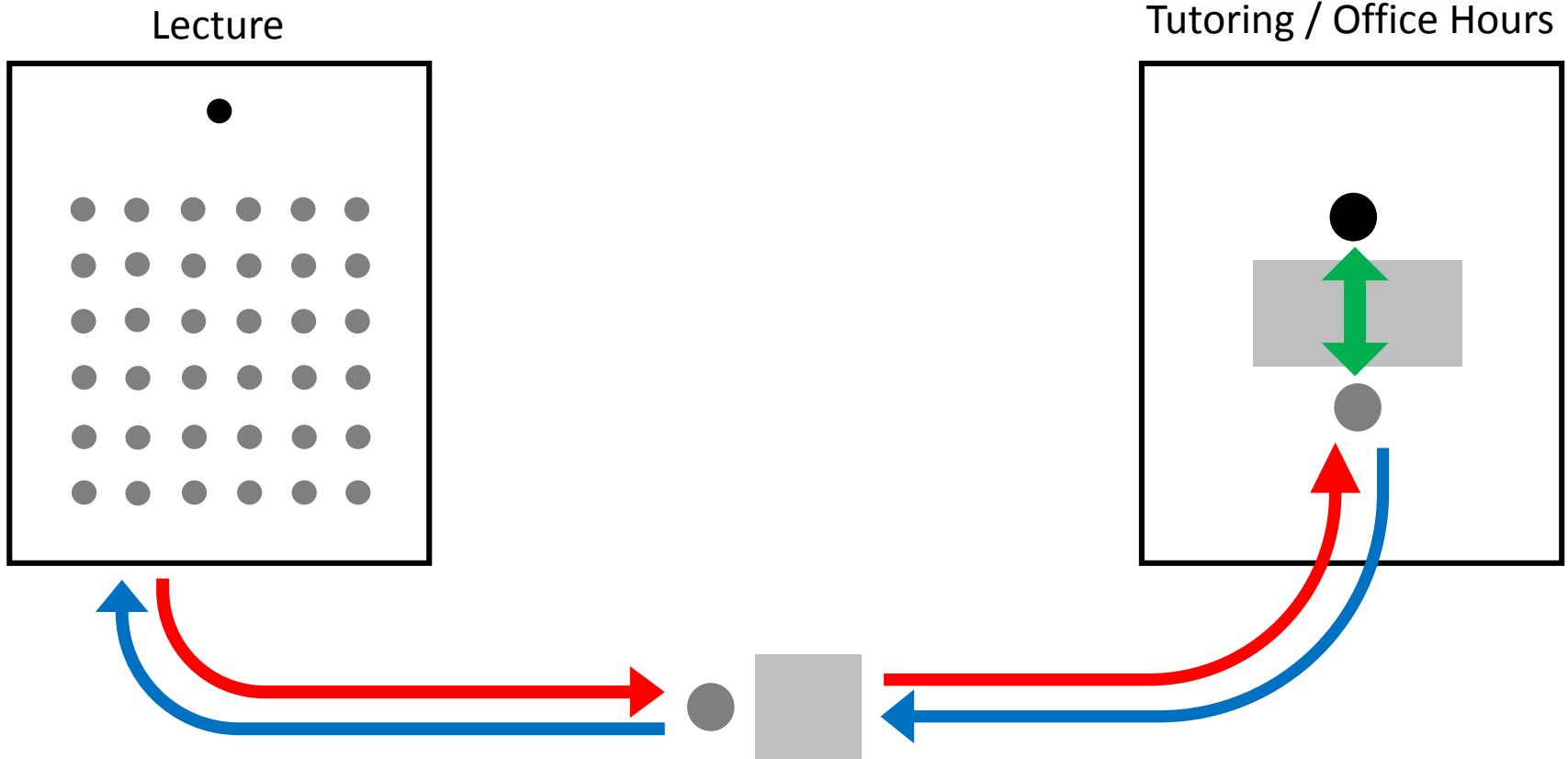


What is SI?

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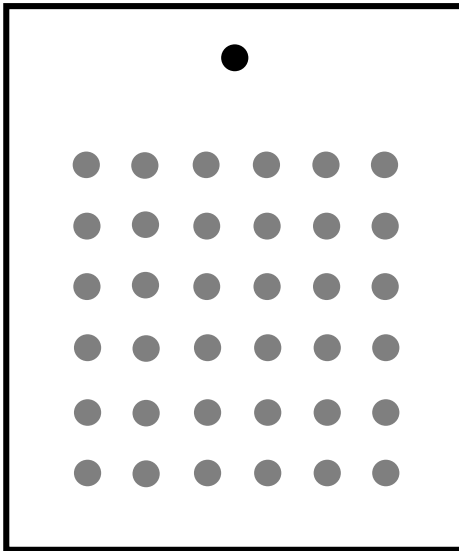


What is SI?

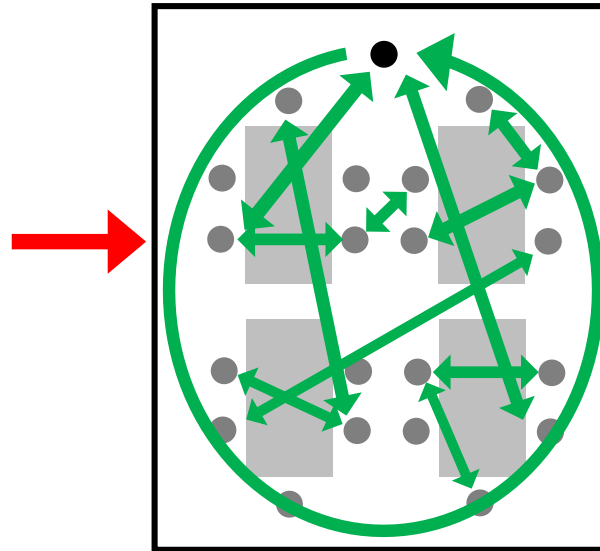


What is SI?

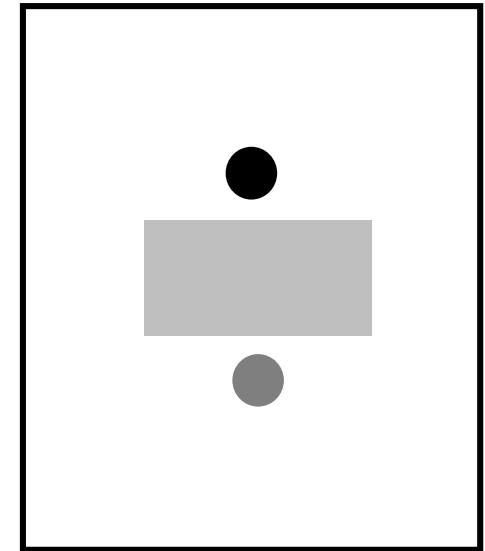
Lecture



SI



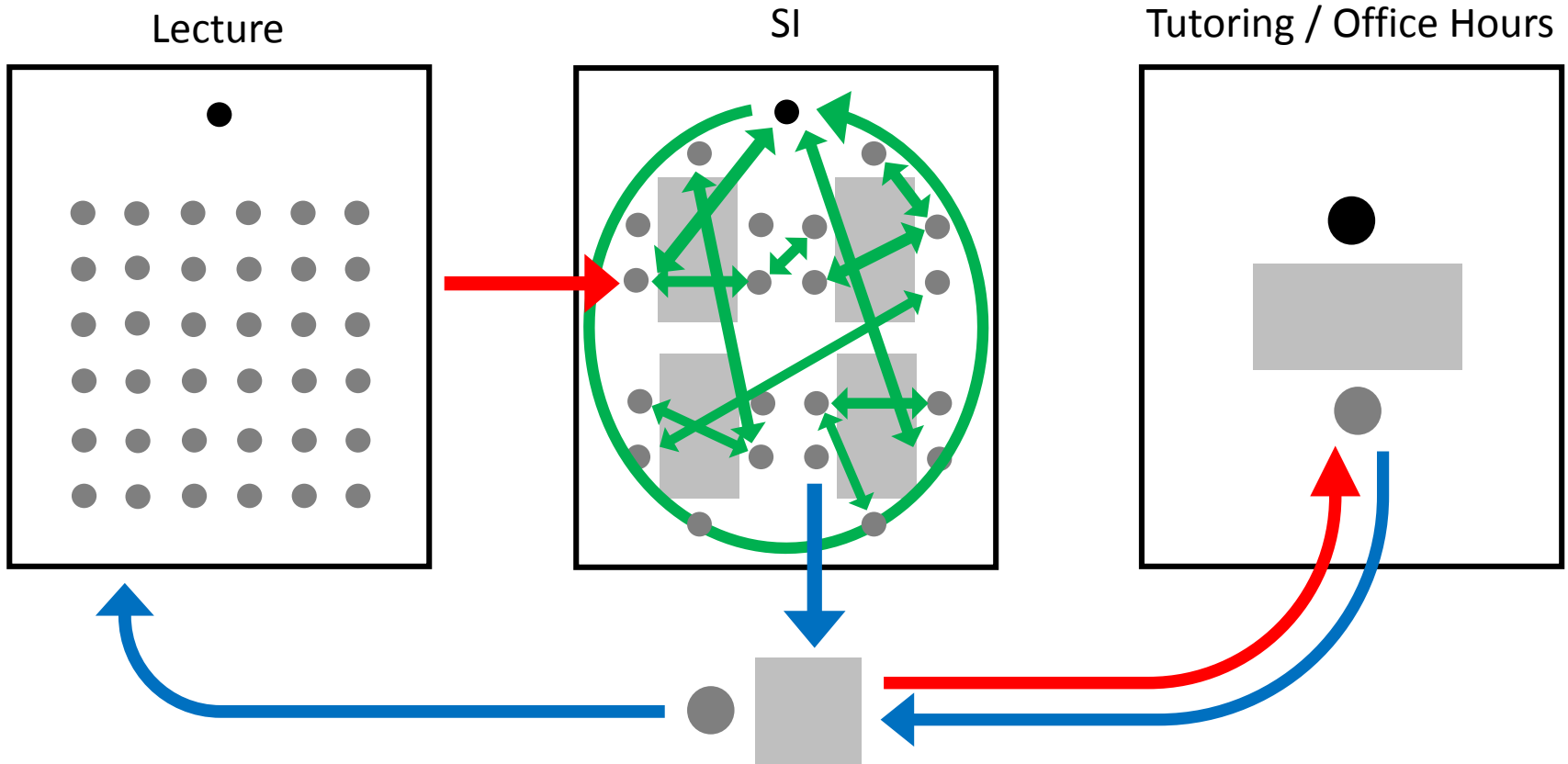
Tutoring / Office Hours



Learning strategies typically used in SI sessions:

- Identifying Key Concepts
- Paired Problem Solving
- Teaching to Learn
- Visual Mapping
- Informal Quizzes
- Note Processing
- Sequencing
- Jigsaw Text Review
- Interactive Games
- Study Planning and Techniques
- Practical Application and Associative Learning

What is SI?



What is SI?

Course Lecture

- Presentation of course content
- All course concepts addressed
- Up to 4 hours per week
- Assignments and evaluation
- Large group environment often limits collaborative learning opportunities

Professor / Instructor

- Content Expert
 - Master Educator
 - Office hours for student support

Supplemental Instruction

- Strategic review of course content
- Key / challenging concepts addressed
- 2 hours per week
- Study strategies and exam prep
- Small group environment supports collaborative learning opportunities

SI Leader

- Study / Learning Specialist
- Content Knowledgeable
- Works closely with course instructor and SI Senior Leader

Qualifying courses may be characterized by:

- High D, F, W, and I rates (especially those 30% or higher)
- Infrequent examinations that focus on higher cognitive levels
- High student to instructor ratio (student has little opportunity for interaction with the professor or the other students)
- Those serving as a gateway or key sequence course
- Large amounts of weekly readings from both difficult textbooks and secondary library reference works
- Faculty or academic department identification as exceptionally challenging within a major course of study

Was SI at CSUSB effective?

Common Questions

- Are DFWI rates for SI participants lower than non-SI students?
- Aren't students who participate in SI students who would receive an A or B without the support?
- Is SI more effective for some courses than others?

Was SI at CSUSB effective?

Let's examine the data together and see if we can find the answers

Supplemental Instruction (SI) Data

Term: All Course: BIOL100, BIOL101

DFWI Rates by SI Sessions Attended

Sessions Attended	Count	DFWI Count	DFWI Rate
6	27	7	26%
7	37	9	24%
8	21	2	10%
9	32	2	6%
10	25	4	16%
11	15	3	20%
12	27	1	4%
13	26	1	4%
14	20	3	15%
15	22	1	5%
16	19	3	16%
17	29	2	7%
18	23	0	0%
19	14	0	0%
20	3	1	33%

Grade Distribution (SI Participants)

Course	Enrolled	A	B	C	Other Pass	DFWI	GPA
BIOL100	57	26%	30%	21%	9%	4%	2.87
BIOL200	58	9%	24%	27%	4%	36%	1.91
BIOL201	29	4%	36%	54%	0%	7%	2.36
BIOL220	29	10%	28%	24%	3%	34%	1.88
BIOL223	84	11%	33%	32%	5%	18%	2.24
GEOG101	54	26%	41%	20%	7%	6%	2.81
MATH110	137	32%	22%	24%	0%	22%	2.44
PSYC203	77	45%	36%	8%	3%	6%	3.21
PSYC100	72	19%	42%	15%	3%	11%	2.77
PSYC210	29	21%	48%	24%	0%	7%	2.80

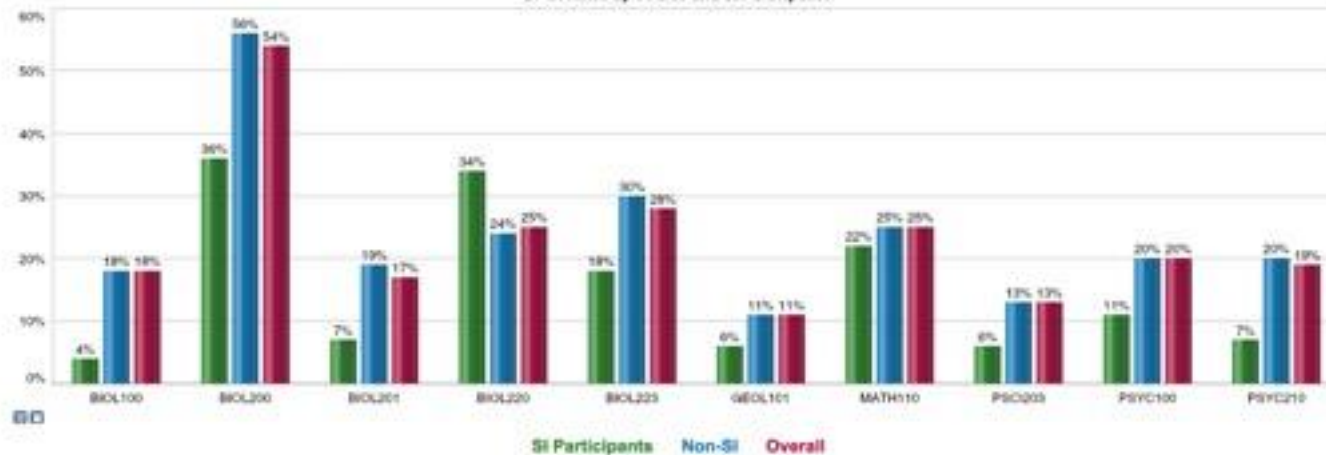
Grade Distribution (non-SI)

Course	Enrolled	A	B	C	Other Pass	DFWI	GPA
BIOL100	1,078	9%	35%	32%	6%	18%	2.32
BIOL200	373	3%	14%	18%	6%	56%	1.29
BIOL201	181	9%	31%	40%	0%	19%	2.21
BIOL220	161	22%	28%	20%	5%	24%	2.30
BIOL223	351	7%	24%	27%	11%	30%	1.82
GEOG101	765	30%	34%	20%	4%	11%	2.77
MATH110	1,359	23%	25%	25%	0%	25%	2.20
PSYC203	1,995	28%	39%	14%	7%	13%	2.71
PSYC100	1,575	11%	25%	17%	6%	20%	2.19
PSYC210	261	16%	36%	23%	4%	20%	2.34

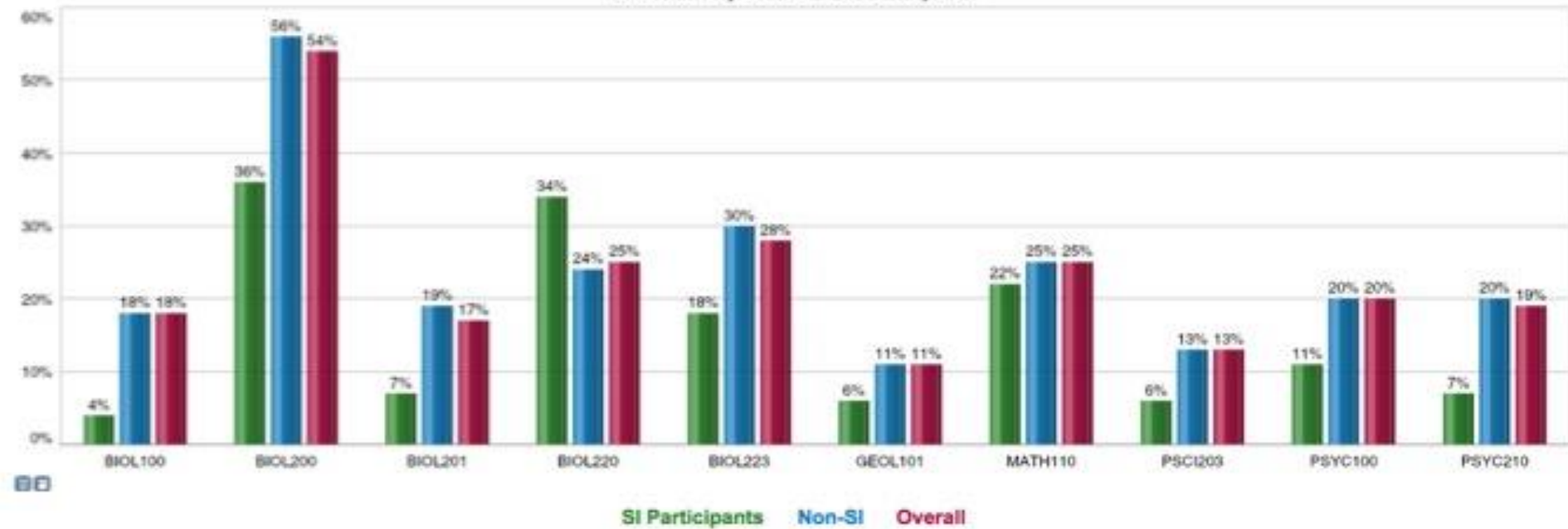
Start of Term GPA (SI Participants)

Course	SI GPA
BIOL100	2.91
BIOL200	2.93
BIOL201	2.89
BIOL220	2.75
BIOL223	3.05
GEOG101	2.86
MATH110	2.64
PSYC203	2.92
PSYC100	2.74
PSYC210	2.85

DFWI Rates by Course and SI Participation

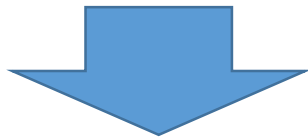


DFWI Rates by Course and SI Participation



Was SI at CSUSB effective?


- Were SI participants "better" students?



- Matched Sample Comparison
 - Course
 - Gender
 - Ethnicity
 - Student Level
 - Pell Grant Status
 - Cumulative GPA
 - High School/Transfer GPA
 - Full-/Part-Time Status
 - Course Repeat Status

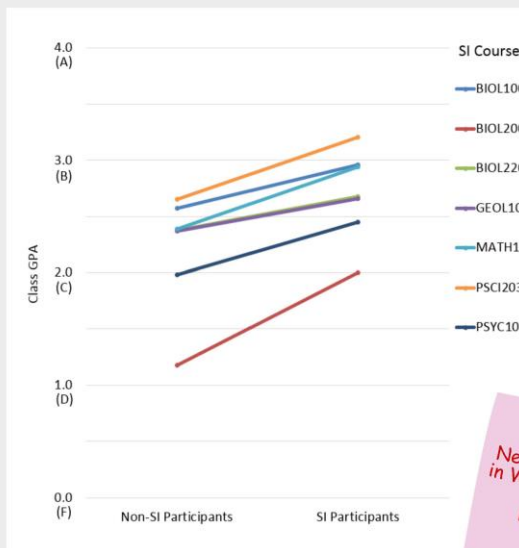
Did You Know

Students who attended supplemental instruction (SI) received higher grades?



CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO
Institutional Research

Matched Sample* Comparison



Course	Non-SI Participants	SI Participants
BIOL100	2.4	2.8
BIOL200	1.2	2.0
BIOL220	2.6	3.0
GEOL101	2.4	2.7
MATH110	2.4	2.8
PSCI203	2.6	3.2
PSYC100	2.4	2.5

*What is matched sample?

Matched sample enables group comparisons by reducing the effect of bias. It does so by matching each individual in the treatment group (SI) with an individual in the comparison group (non-SI) on specified variables. The variables used for this comparison are listed below the figure.

New SI Course in Winter 2017!!

BIOL223

What is SI? [Click here.](#)

Note: PSY210 is not shown above due to limited sample size (n=4). SI and non-SI students were matched on course, gender, ethnicity, student level, Pell grant status, cumulative GPA, high school/transfer GPA, full/part-time status and course repeat status. Data based on students in supplemental instruction courses in Fall 2016 (N=4,774) and Matched SI Sample (N=410).

<https://www.csusb.edu/institutional-research>
CSUSB Office of Institutional Research
February 2017

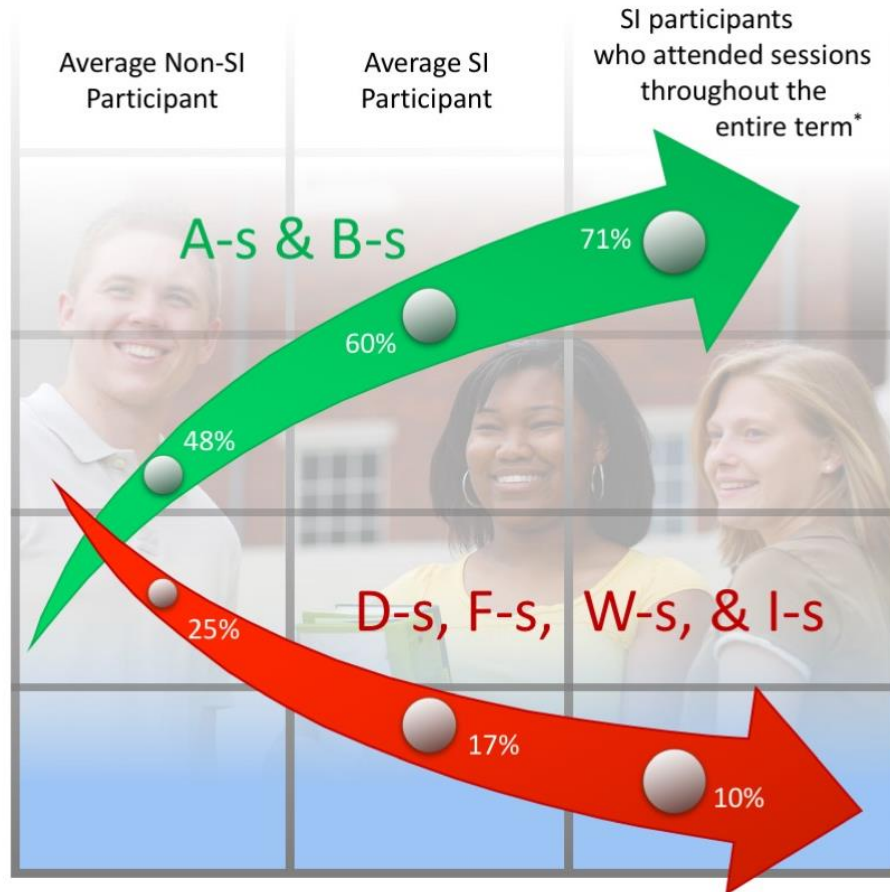
Was SI at CSUSB effective?

- Fall 2016 SI data
- SI participation pattern
 - Decrease in 2nd half
 - More
 - Female
 - PELL recipient
 - Full-time student
 - Course repeater
 - Sophomore and Junior
 - No ethnic difference
- Impact of SI
 - More As and Bs
 - Less DFWIs
 - Higher average grades
 - Even better outcomes for consistent participation

How can we continue to use the data?

- Participatory Action Research
 - Discovery: Examined available data from multiple sources
 - Measurable Action: Co-constructed a data infographic that was shared with faculty and students.
 - Reflection: In progress

How can we continue to use the data?



What happens next?

- Examine measures of learning
- Map outcomes in course sequences
- Explore with colleagues other variables which are indicators of student success and challenges in SI courses