

A partnership between UNC-Chapel Hill and the Association of American Universities to redesign introductory STEM courses

**Active Learning**

is “anything course-related that all students in a class session are called upon to do other than simply watching, listening and taking notes”

(Felder & Grent, 2009)

# ACTIVE LEARNING

HIGH STRUCTURE

“Highly structured courses assign daily and weekly active-learning exercises”

(Freemam, Haak, & Wenderworth, 2011)

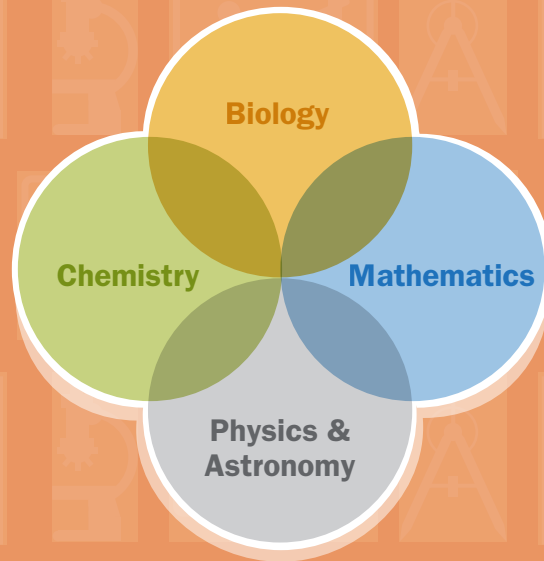
IMPROVING STEM EDUCATION

**COLLABORATION ...**

Early career and senior faculty members worked together mentoring one another to use active learning and ensure that student learning outcomes were achieved.

**45**

STEM faculty worked across and within departments in faculty learning communities.



**...BY THE NUMBERS**

**6** Semesters

**4** Departments

**12** Introductory courses

**25** Faculty apprenticeships

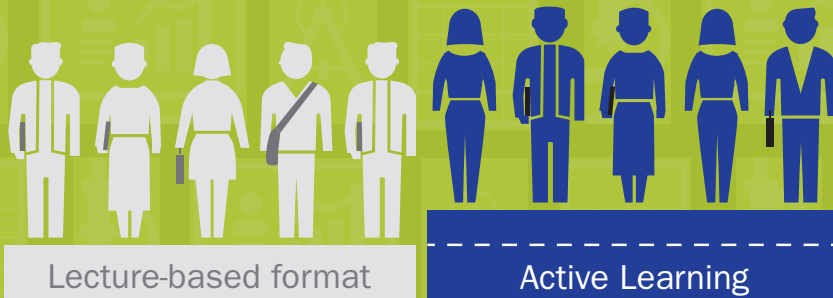
**3,000** Students per semester, average

IMPROVING LEARNING OUTCOMES

**HIGHER LEARNING GAINS**

**13%**

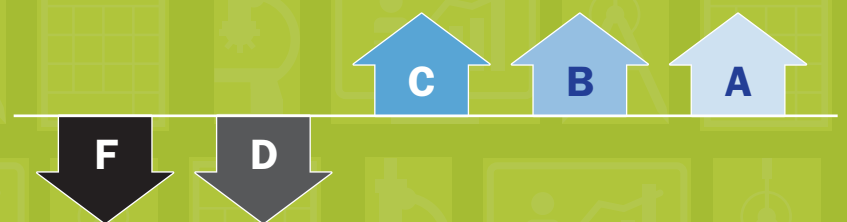
higher normalized learning gains among students engaged in active learning compared to those in traditional classes were found in preliminary results.



**STRUGGLING STUDENTS SHOW GREATEST IMPROVEMENT**

All students learned more, but those in the bottom quartile saw the greatest improvements.

**ACTIVE LEARNING STUDENTS' GRADES**



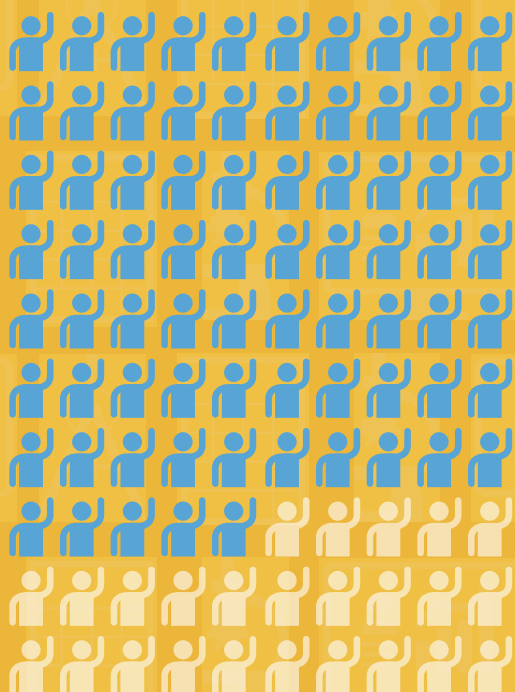
**FAILING GRADES** decreased with active learning.

IMPROVING ATTITUDES

**IMPROVING STUDENT ATTITUDES ABOUT STEM**

**72%**

of students reported that the active learning course made them more interested in the subject overall.



**ACTIVE LEARNING IMPROVES STUDENT APPROVAL**

Students were much more positive about the learning environment of the active learning course rather than the course in the lecture-based format.

Percentage of students surveyed who strongly agreed that the atmosphere in class was conducive for learning

