ASSOCIATION OF AMERICAN UNIVERSITIES UNDERGRADUATE STEM EDUCATION INITIATIVE

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

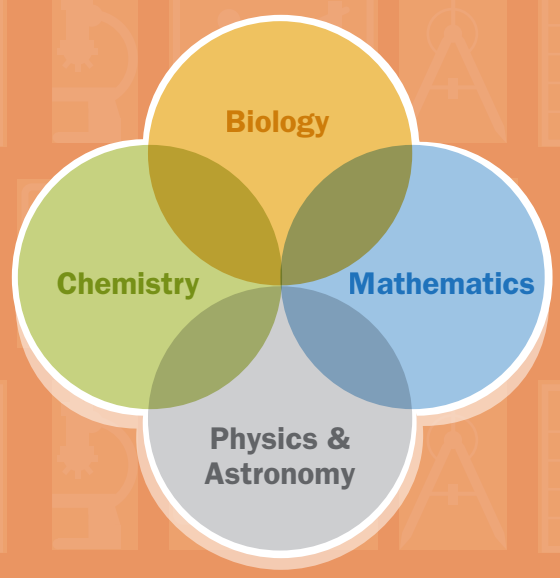
"Highly structured courses assign daily and weekly active-learning exercises" *(Freemam, Haak, & Wenderworth, 2011)*

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.



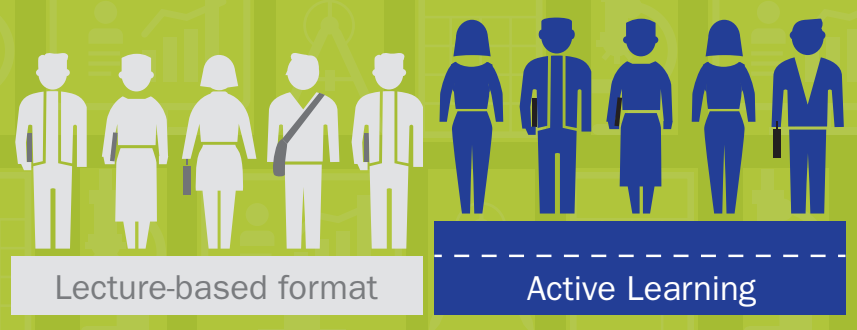
...BY THE NUMBERS

- **6** Semesters
- **4** Departments
- **12** Introductory courses
- **25** Faculty apprenticeships
- **3,000** Students per semester, average

IMPROVING LEARNING OUTCOMES

HIGHER LEARNING GAINS

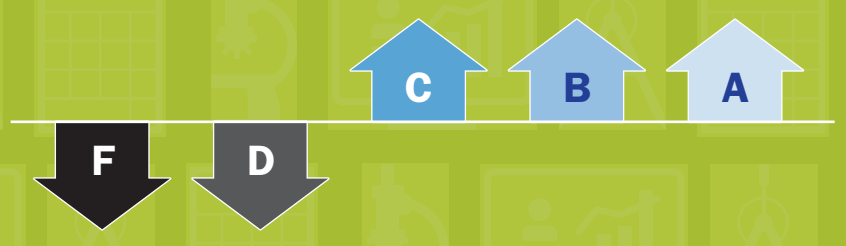
13% higher normalized learning gains among students engaged in active learning compared to those in traditional classes were found in preliminary results.



STRUGGLING STUDENTS SHOW GREATEST IMPROVEMENT

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

ACTIVE LEARNING STUDENTS' GRADES

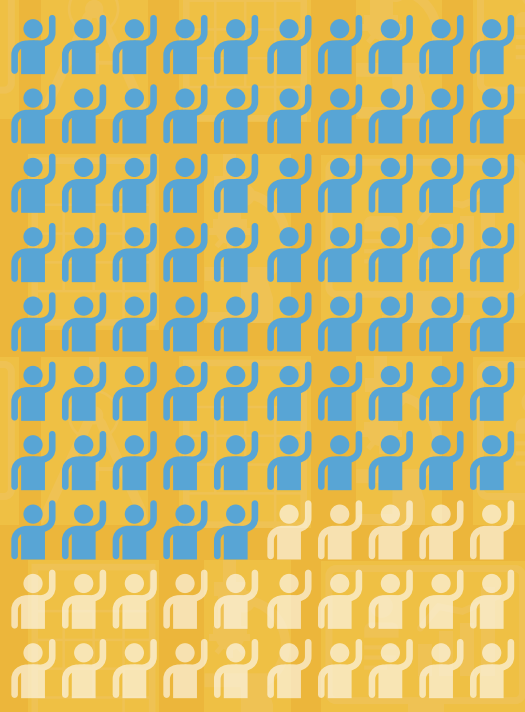


FAILING GRADES decreased with active learning.

IMPROVING ATTITUDES

IMPROVING STUDENT ATTITUDES ABOUT STEM

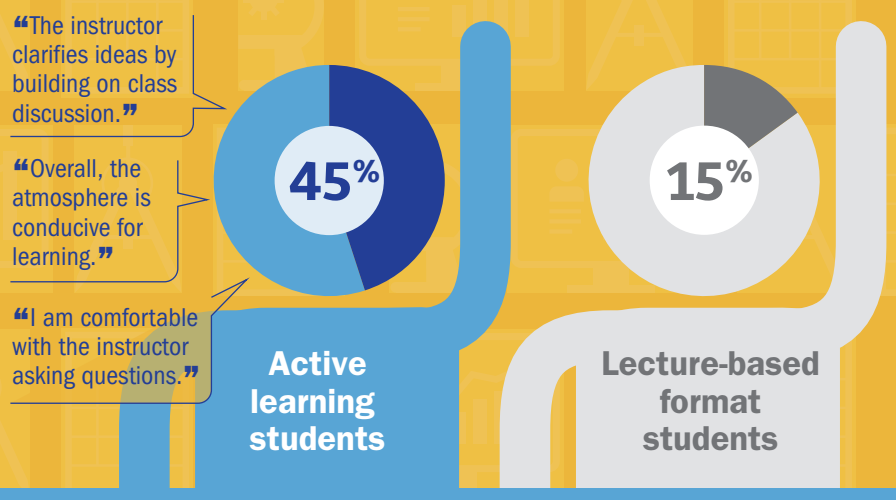
72% of students reported that the active learning course made them more interested in the subject overall.



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



THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

College of Arts & Sciences
Synergy Unleashed

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