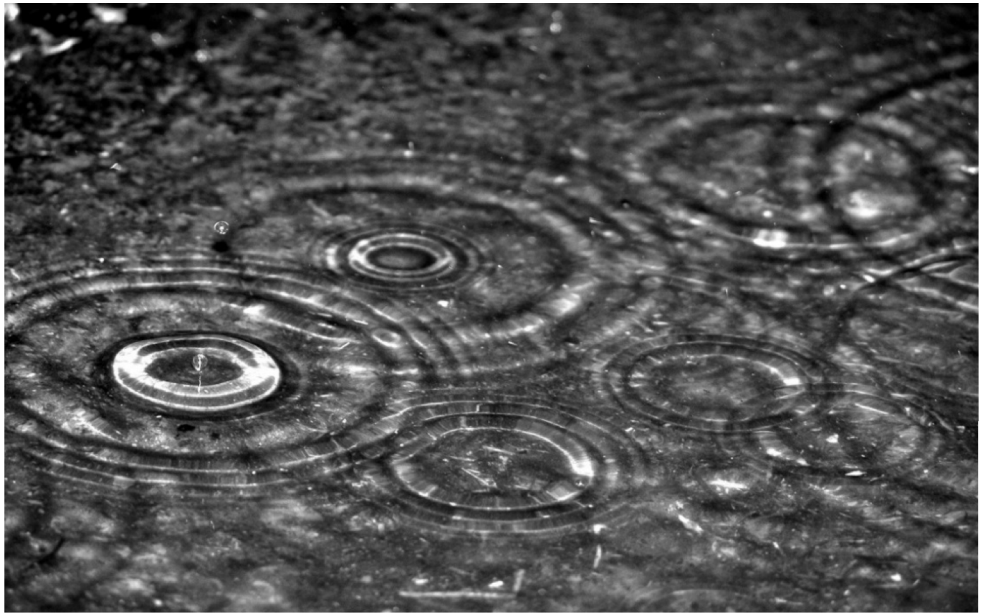
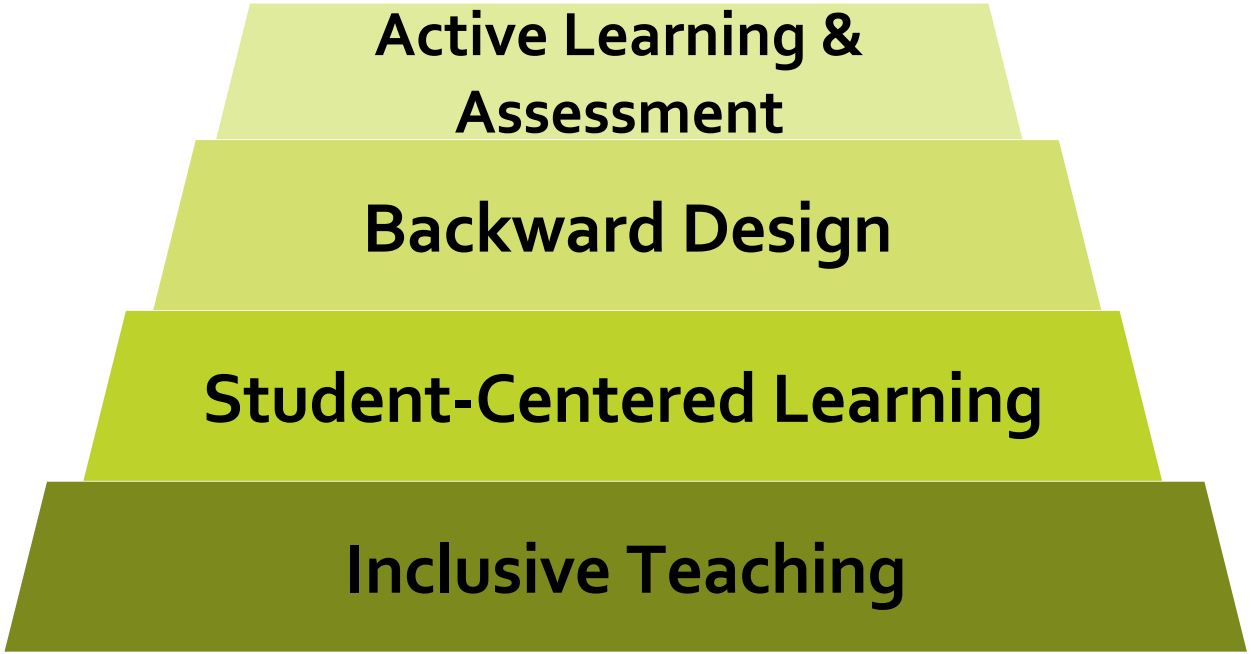
The Mobile Summer Institutes on Undergraduate Education

Creating Points of Transformation



MOBILE SUMMER INSTITUTES on Scientific Teaching

Organizing Principle - Scientific Teaching

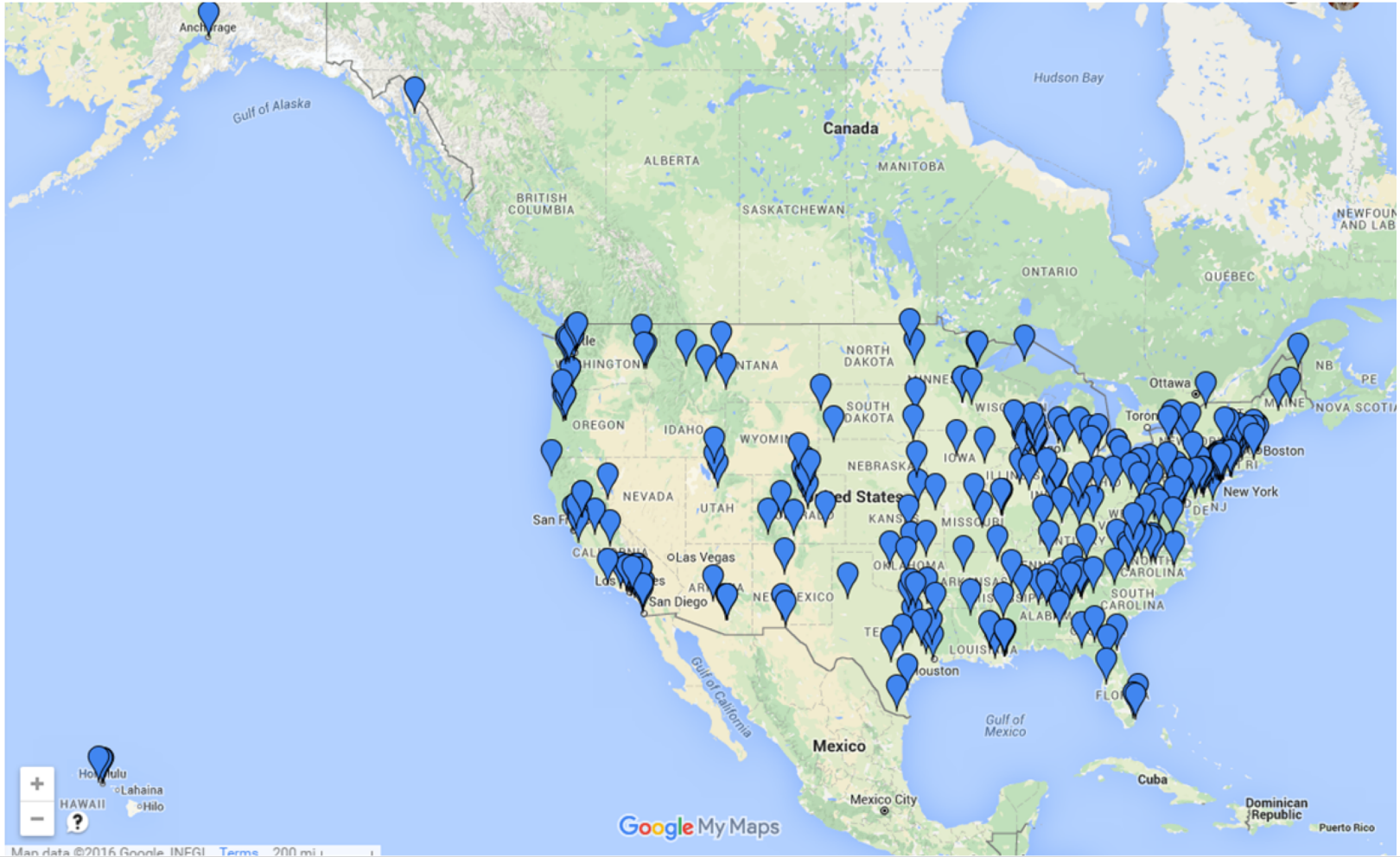


Condensation of best, evidence-based teaching practices

Acknowledgments

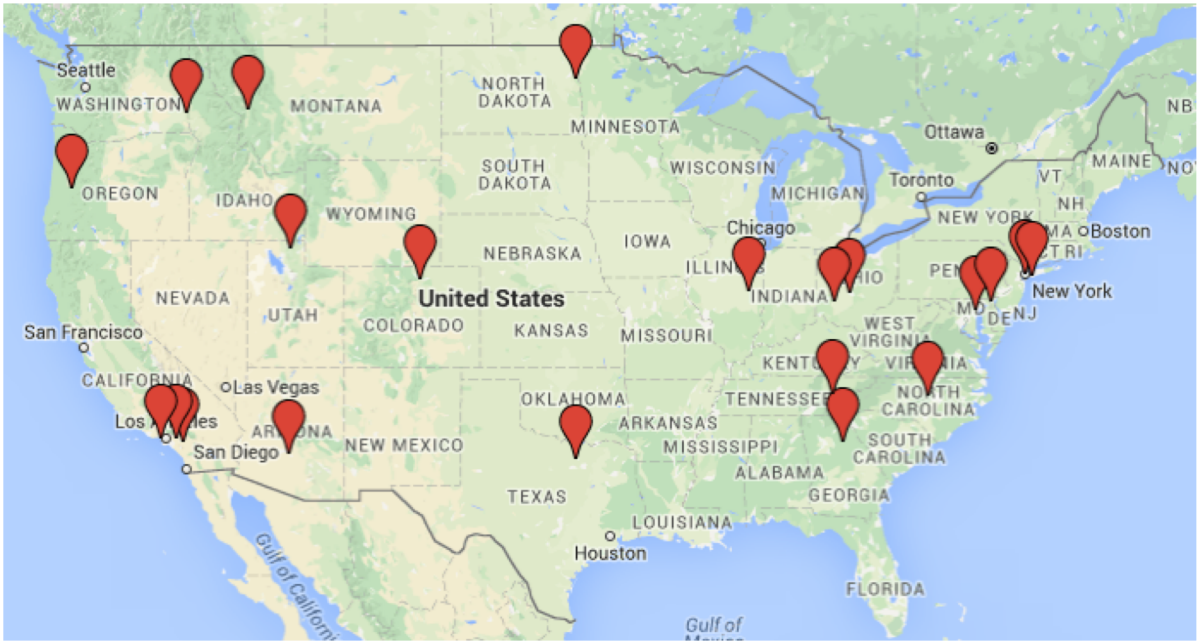
- Co-founders of the National Academies Summer Institutes:
  - Jo Handelsman (U Wisconsin)
  - Bill Wood (UC Boulder, emeritus)
- Liaison to the National Academies:
  - Jay Labov, NRC
- Funding: HHMI, NSF

Building on prior success



Your campus is part of a growing network

The original network grant-funded network (below) is expanding



In 2018 & 2019:
Nearly 50 MoSIs
Over 1000 participants
5 countries

At your table, introduce yourself by providing the following information:

1. Your first name
2. Your role at UM
3. Place of origin
4. Something no one else at the table knows about you

Nationally, only 60% of college students graduate in 6 years

Goal: Improve student learning, retention/time to graduation FOR ALL

In active learning classes, students fail less & perform better

Freeman, et al., (2014). Active learning increases student performance in science, engineering, and mathematics. *PNAS*, *111*(23), 8410-8415.

Nationally, campuses are measuring active learning instruction

SCIENCE EDUCATION

Anatomy of STEM teaching in North American universities

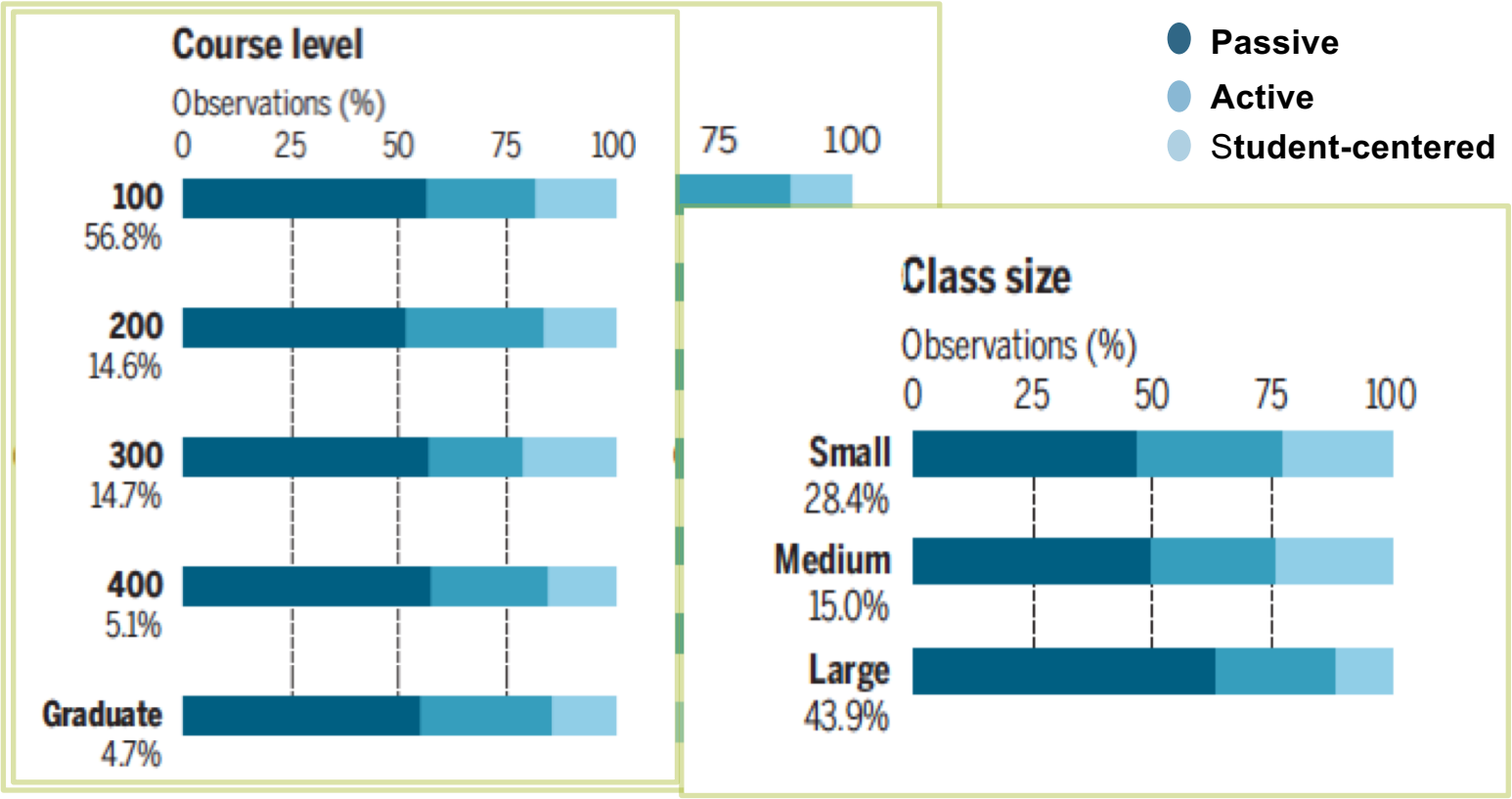
Lecture is prominent, but practices vary

Despite numerous calls to improve student engagement, supported by a large body of evidence, STEM classes are often still dominated by lectures.

tion of STEM teaching practices in North American universities based on classroom observations from over 2000 classes taught by more than 500 STEM faculty members across 25 institutions.

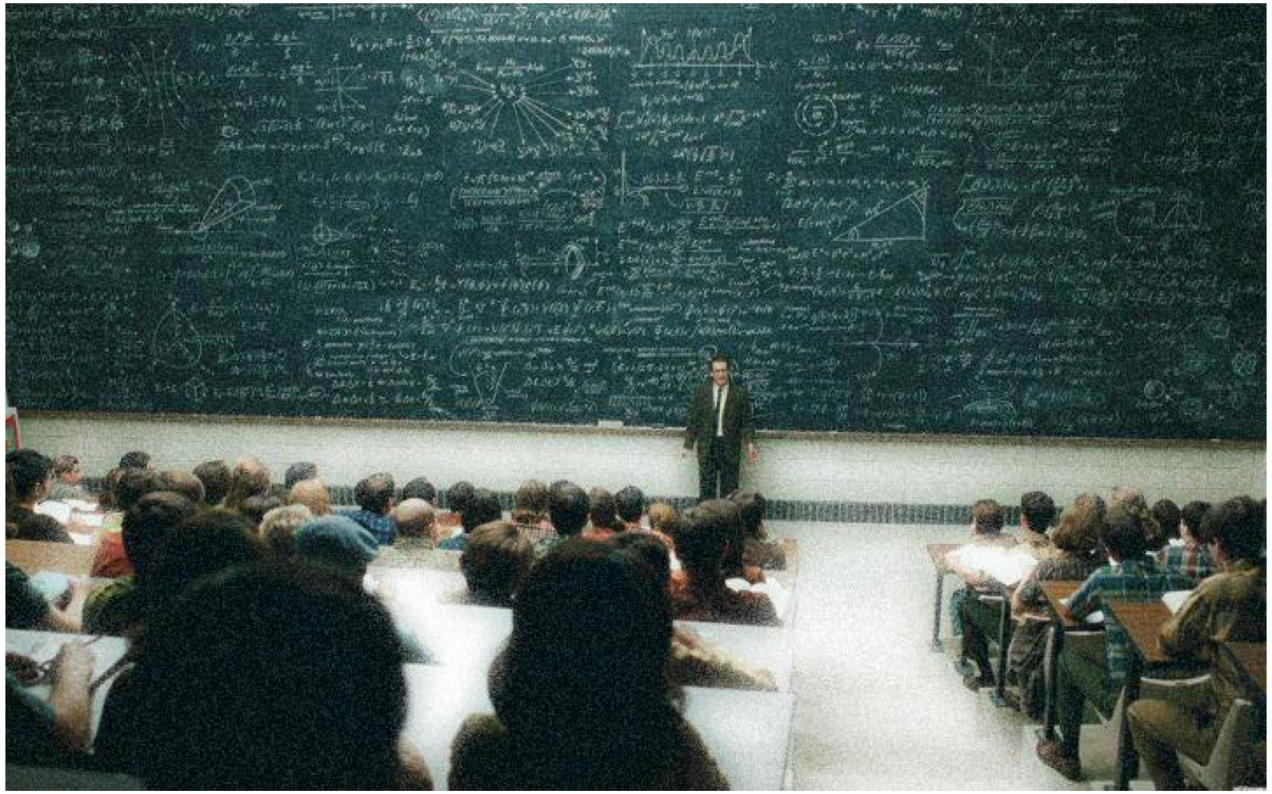
Stains, M., Harshman, J., Barker, M. K., Chasteen, S. V., Cole, R., DeChenne-Peters, S. E., ... & Levis-Fitzgerald, M. (2018). Anatomy of STEM teaching in North American universities. *Science*, *359*(6383), 1468-1470.

The majority of STEM classes are still passive lecture



Stains, et al., (2018). Anatomy of STEM teaching in North American universities. *Science*, *359*(6383), 1468-1470.

Continued use of traditional lecture is becoming educational malpractice



A 4-pronged approach to reform

Pedagogical training	Reflective practice through peer review
Policies to support reform	Shared vision through strategic planning

Henderson, et al., (2010) *JCST*

On your campus, the Mobile Summer Institutes:

- Develop a critical mass of people with the same framework and vision for educational reform
- Develop reflective practitioners through distributed peer-review and self-evaluation
- Facilitate strategic planning to support educational reform

The University of Montana MoSI has trained 51 future educational leaders over the past two years

	Total Number	% of Participants
Tenure Track Faculty	28	55
Non-tenure Track Faculty	15	29
Graduate Students	7	14
Postdoctoral Researchers	1	2

Sharing successes:

How have you used your position to facilitate the transformation of education at UM?

Next steps:
Hearing faculty ideas on reform efforts

MoSI Strategic Planning 2019

Participant Plan Presentations

INSTRUCTIONAL FACULTY

Goal: UM values and challenges instructional staff and faculty as a matter of social justice and student retention/success.

Outcomes	Retention of faculty engaged in high-impact instruction furthering student success and retention	Enhanced classroom and mentoring experiences	Inclusive community for all UM employees
Levers	Supportive Administration and Dept. Chairs	NTT contracts, Instructional course planning (Dept. Chairs)	Engaged Provost, Diverse faculty senate, Chatty adjuncts
Needs	Value of NTT faculty reflects merit factors (experience, pedagogy, expectations, time)	NTT faculty employment is stable, predictable, and socially just	Admin hears and acts on experiences of NTT faculty and staff

FACULTY EVALUATION

Goal: A faculty evaluation process that incentivizes teaching excellence and student-centered learning.

Outcomes	Replace the current student evaluation system.	A new comprehensive teaching evaluation system to improve teaching quality and student engagement.	A teaching merit award fund will be established.
Levers	Existing student evaluation system gives ***biased***, ***inadequate*** data. Faculty and students desire more effective methods to evaluate teaching.	There are well-established, effective methods to evaluate teaching and student learning. (Currently MoSI; Pedagogy Project.)	An incentive fund will be established to reward outstanding teaching.
Needs	A committee reporting to the Provost will explore alternatives to the current assessment system.	Expand training for faculty in peer evaluation; modern pedagogy; and measurable learning outcomes. Engage with the University Faculty Association to revise the CBA text.	The decision to establish the fund will have to be made by the administration.

TEACHING ACADEMY

Goal: Promote a culture that facilitates student success

Outcomes	All teaching staff have common experience and language in teaching pedagogy	Teaching Academy: commitment to continued learning for instructors
Levers	Online Course for New Instructors New TA Orientation New Faculty Orientation	FDO, Teaching Excellence Initiative, Pedagogy Project, Learning Assistant Program, Faculty Inquiry Project, MOSI
Needs	Graduate Student Teaching Institute New Instructor Training & Workshops	Official certificate program Graduate teaching coordinator Support for a core Teaching Academy group

ONLINE EDUCATION

Goal: UM will offer quality, effective online education to promote student success.

Outcomes	Faculty will implement best practices in Instructional Design to create quality, effective online courses.	Quality Standards for Teaching and Learning will be established and expected.	Training in online education will be prioritized, offered, and funded.
Levers	**UMOnline** Instructional Design	**Pedagogy Project**	**MOSI | FIP | FDO**
Needs	• Sufficient support around online instructional design • Defining job roles for instructional support team	• Explore tools and measurements for assessing quality of online instruction • Interdisciplinary peer support teams for online teaching	• Travel grants to support training for online teaching • Highlight current resources accessible to faculty and students

Example Goal:
UA Little Rock will be a student-centered environment that fosters a sense of campus community

OUTCOMES	All university colleges will have dedicated student space for academic and social use.	Students & faculty participate in peer-mentoring program(s) for student leadership & collaboration.	Welcome and embrace students and families at university, college, & department level events.
Lever	Five common spaces already exist to build from.	Some department chairs already encourage faculty-student interaction outside of classes and office hours.	Bailey Center and four other spaces would be great to host events.
Need	Dedicate funds, time, and personnel for student academic and social spaces.	Financial and course support for peer-mentoring program(s)	Allocate funds and provide support and publicity for student-centered events.

Questions?