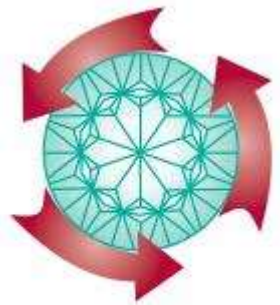
Learning Spaces Collaboratory Webinar

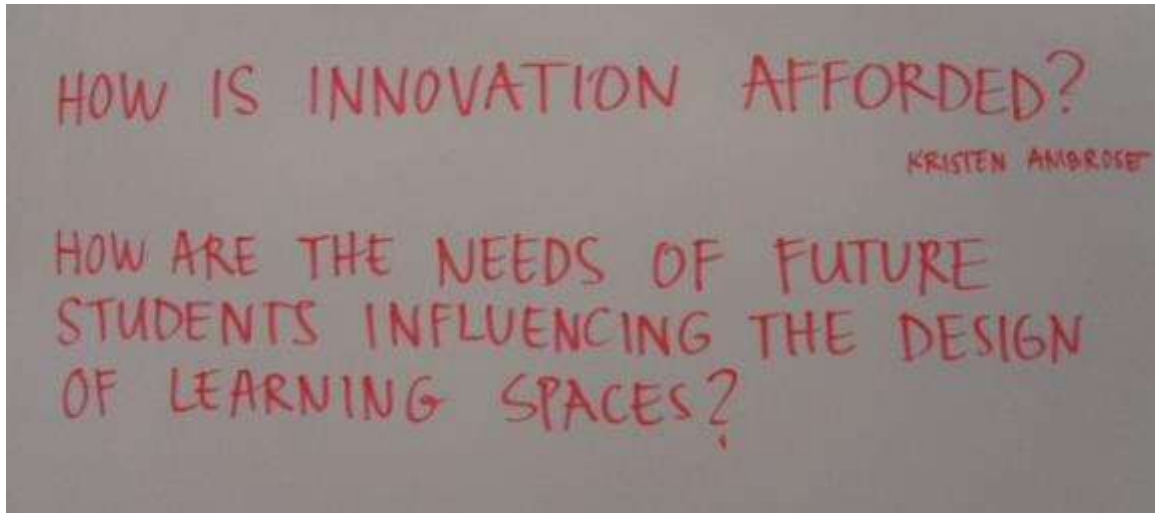
Calibrating the Return of Investing in Active Learning Spaces: The Institutional Perspective

September 15, 2016



http://www.pkallsc.org/

Focusing on the Future of Planning Learning Spaces
Spring 2016 LSC Regional Roundtables



http://pkallsc.org/basic-page/spring-2016-lsc-roundtables

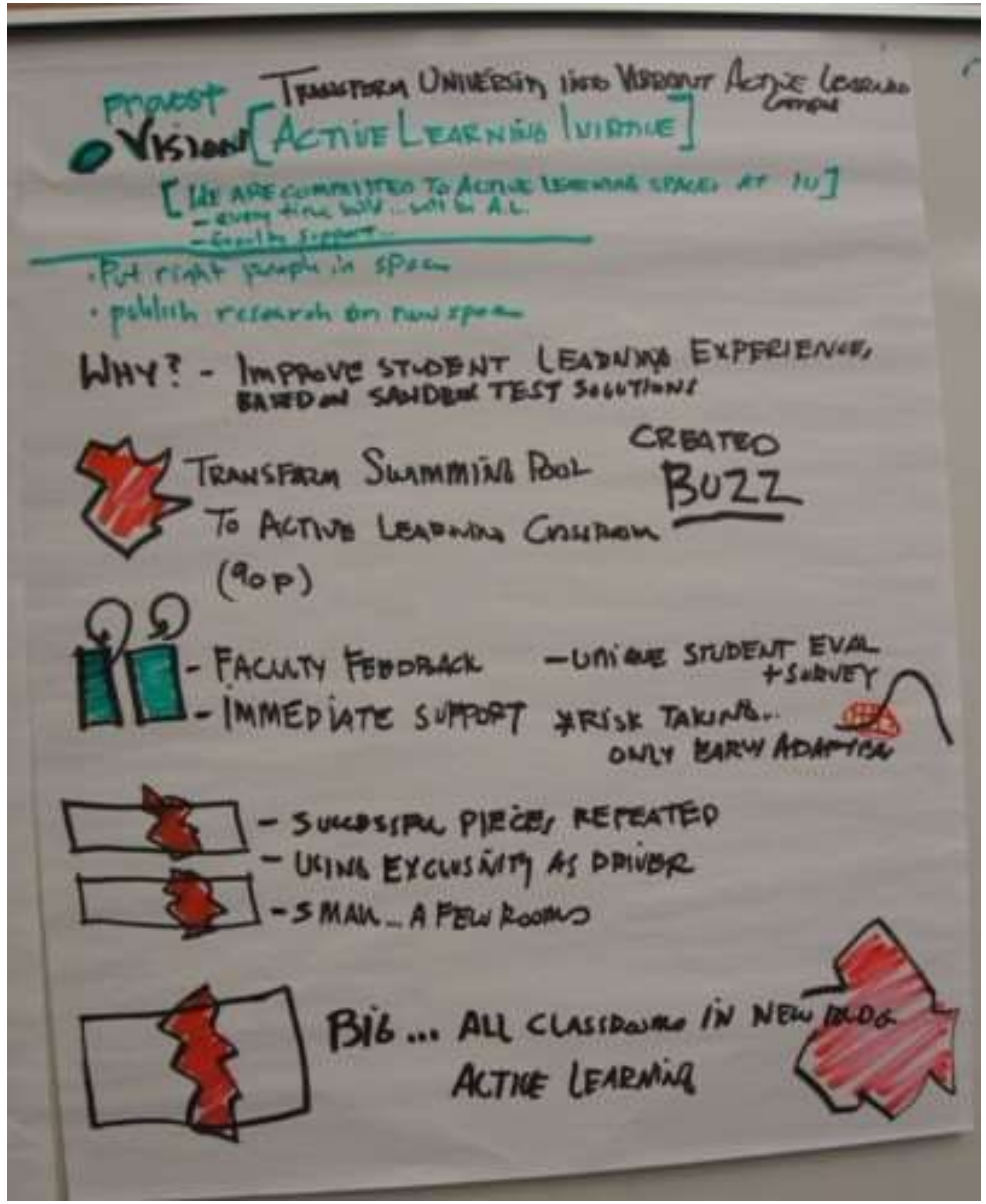
Webinar Outline

I. Introductions: the People, the Spaces

II. Investing in evidence-based research on learning

III. Investing in integrated planning

IV. Investing in the institutional future

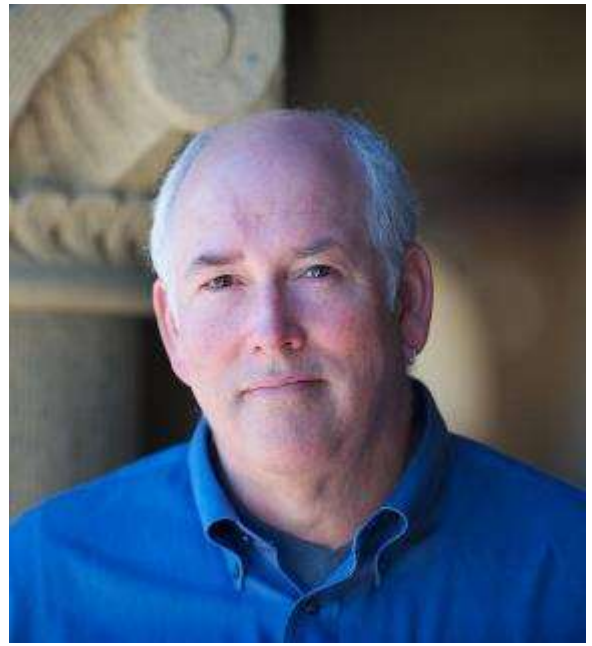


I. Introductions: The People





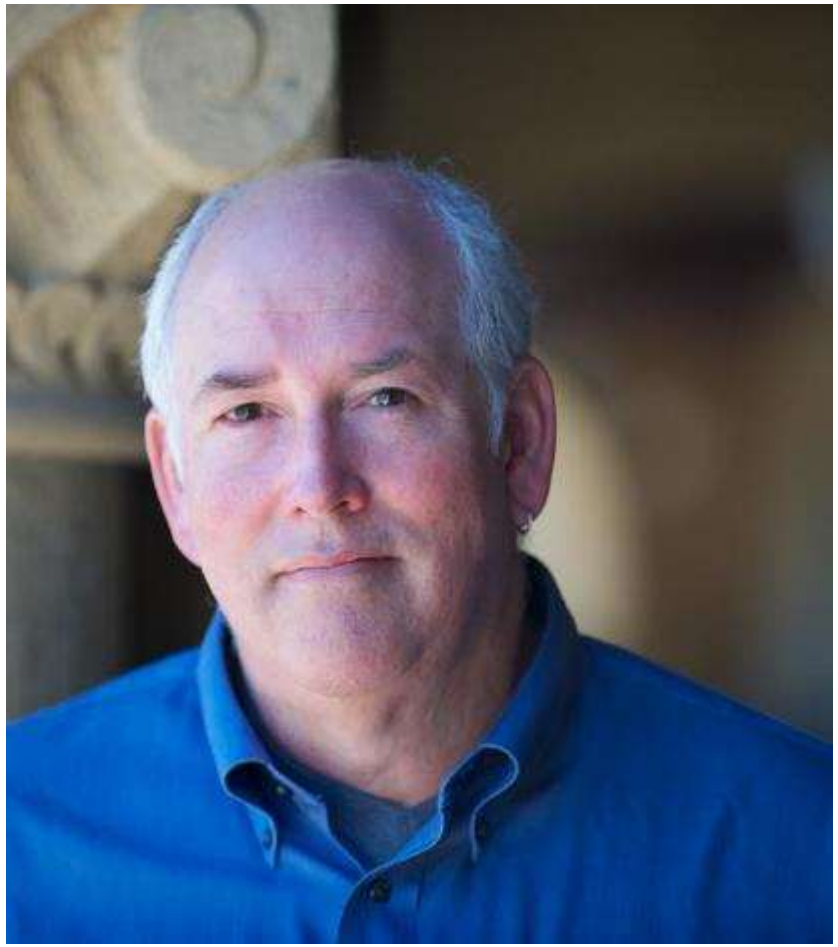




Robert Emery Smith

Director of Classroom Innovation
Vice Provost for Teaching and Learning

Stanford University



Jon Dorbolo

Associate Director, Technology Across the Curriculum

Oregon State University

John Greydanus

Director, Academic Technologies

Oregon State University

Elizabeth J. Beise

Associate Provost, Academic Planning & Programs

Professor of Physics

University of Maryland, College Park

Hilary Gossett

Assistant Director of Academic Facilities

University of Maryland, College Park

Kristen Ambrose

Senior Associate

Ayers Saint Gross

Tom Bauer

Associate Principal

Bora Architects

I. Introductions: The Place

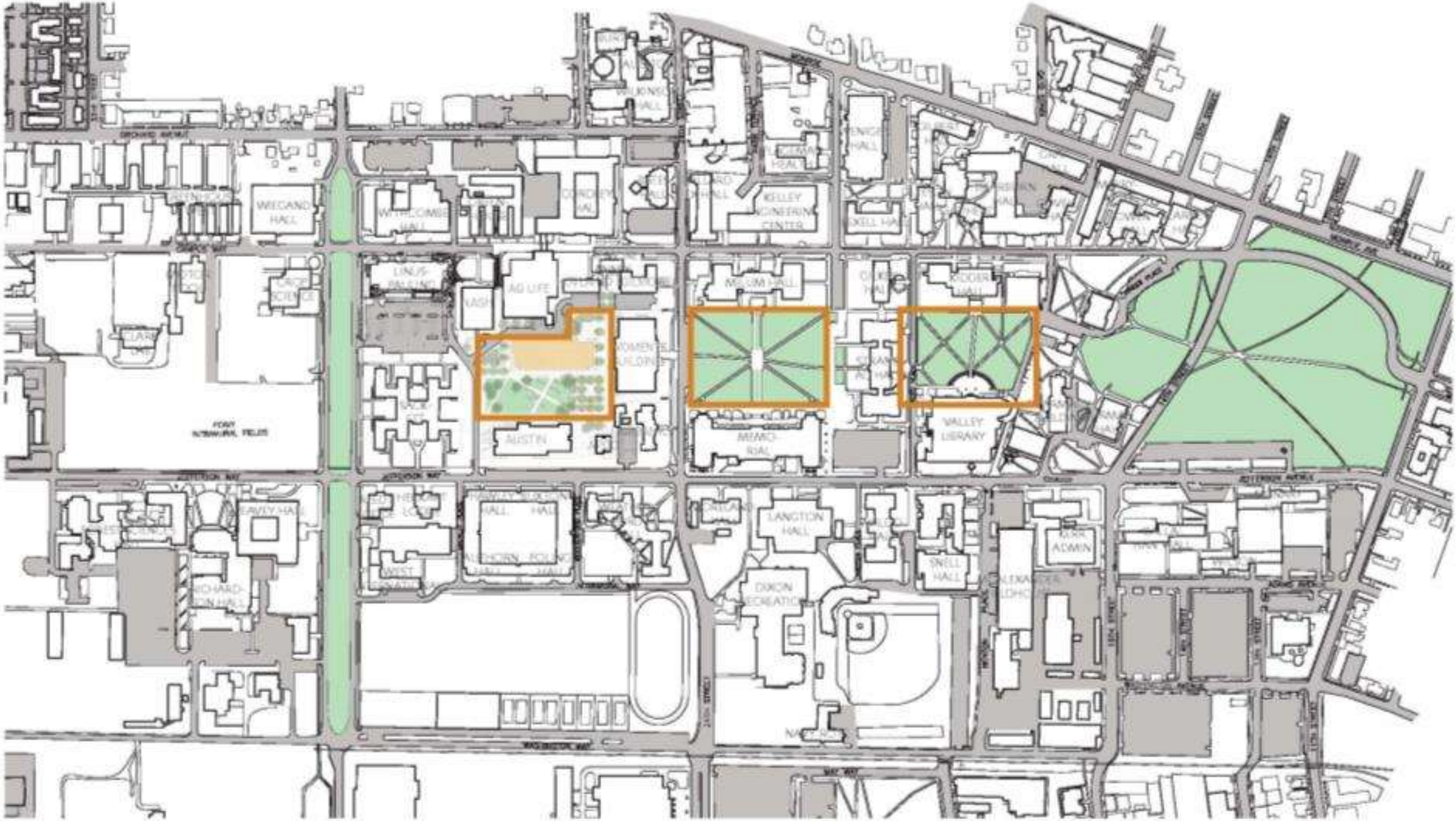
Oregon State University
Learning Innovation Center (LInC)
Bora Architects

University of Maryland College Park
The Edward. St. John Learning and Teaching Center
Ayers Saint Gross

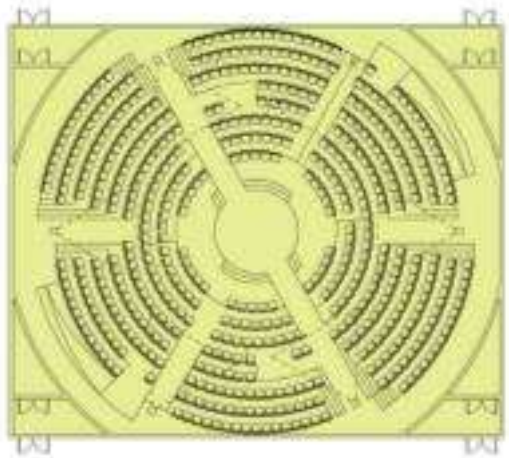
Oregon State University— Learning Innovation Center (LInC)

Bora Architects

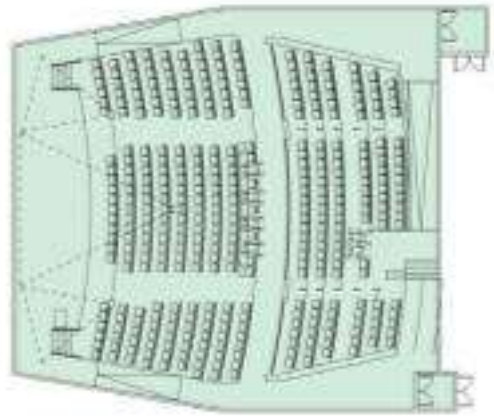

Channel 31
Golgi Apparatus, transport vesicles & lysosomes
Golgi: repackaging
Transport vesicles:
Secretory vesicles
Membrane renewal vesicles
Lysosomes: digestive enzymes
Module 3.6


WEGAND HALL
AUSTIN
MEMORIAL
VALLEY LIBRARY
LANGTON HALL
DIXON RECREATION
ADMIN
ORCHARD AVENUE
ADDISON WAY
ADDISON AVENUE
15TH STREET
ADAMS AVENUE

BUILDING PROGRAM Formal Learning Program



600



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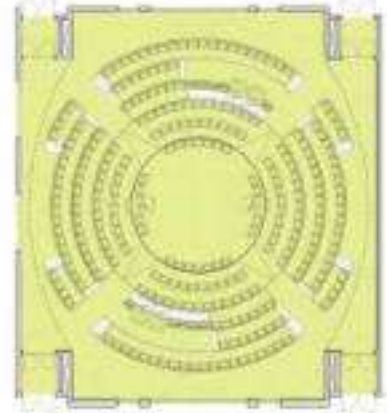
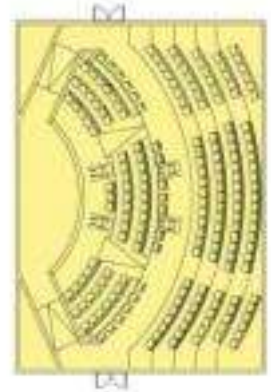


300

180



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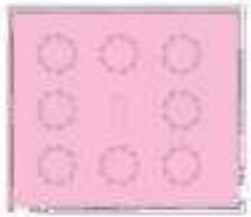
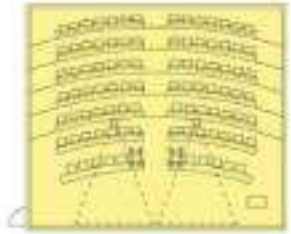


72-90



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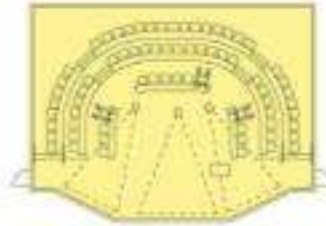
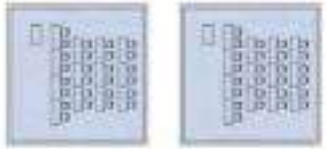


70

60-89

14



26-40

29-42

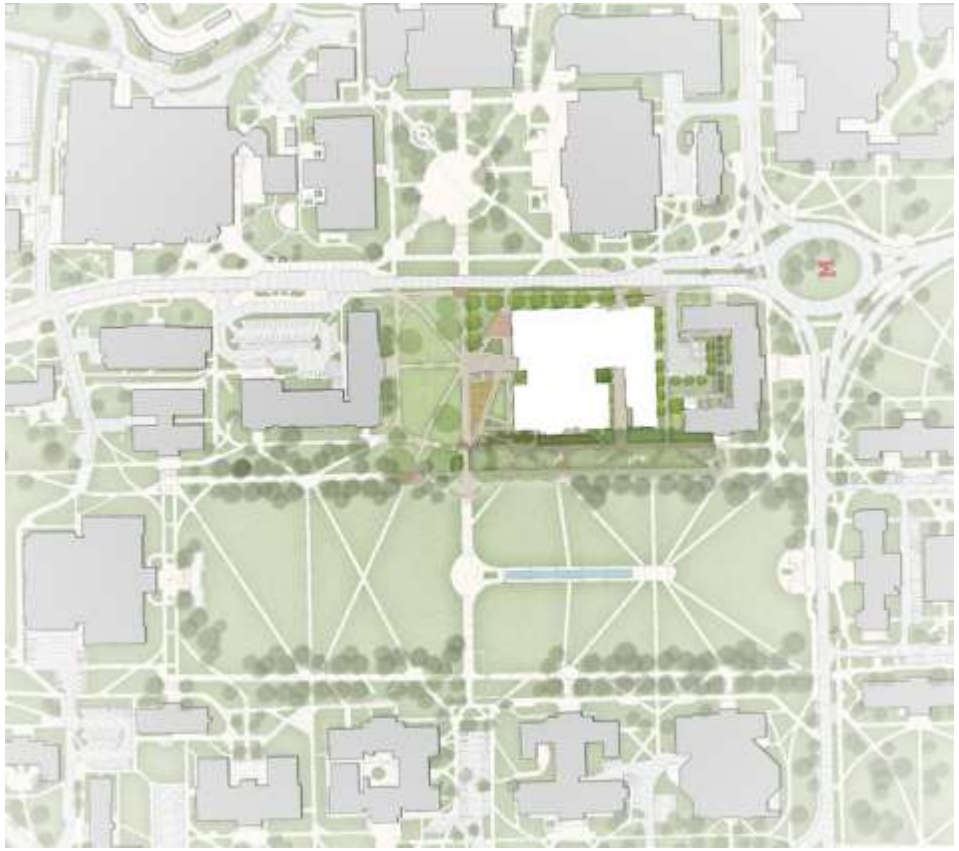
2145-2270 Total Classroom Seats

Integrated Instructional Resource Center

University Honors College

University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Ayers Saint Gross



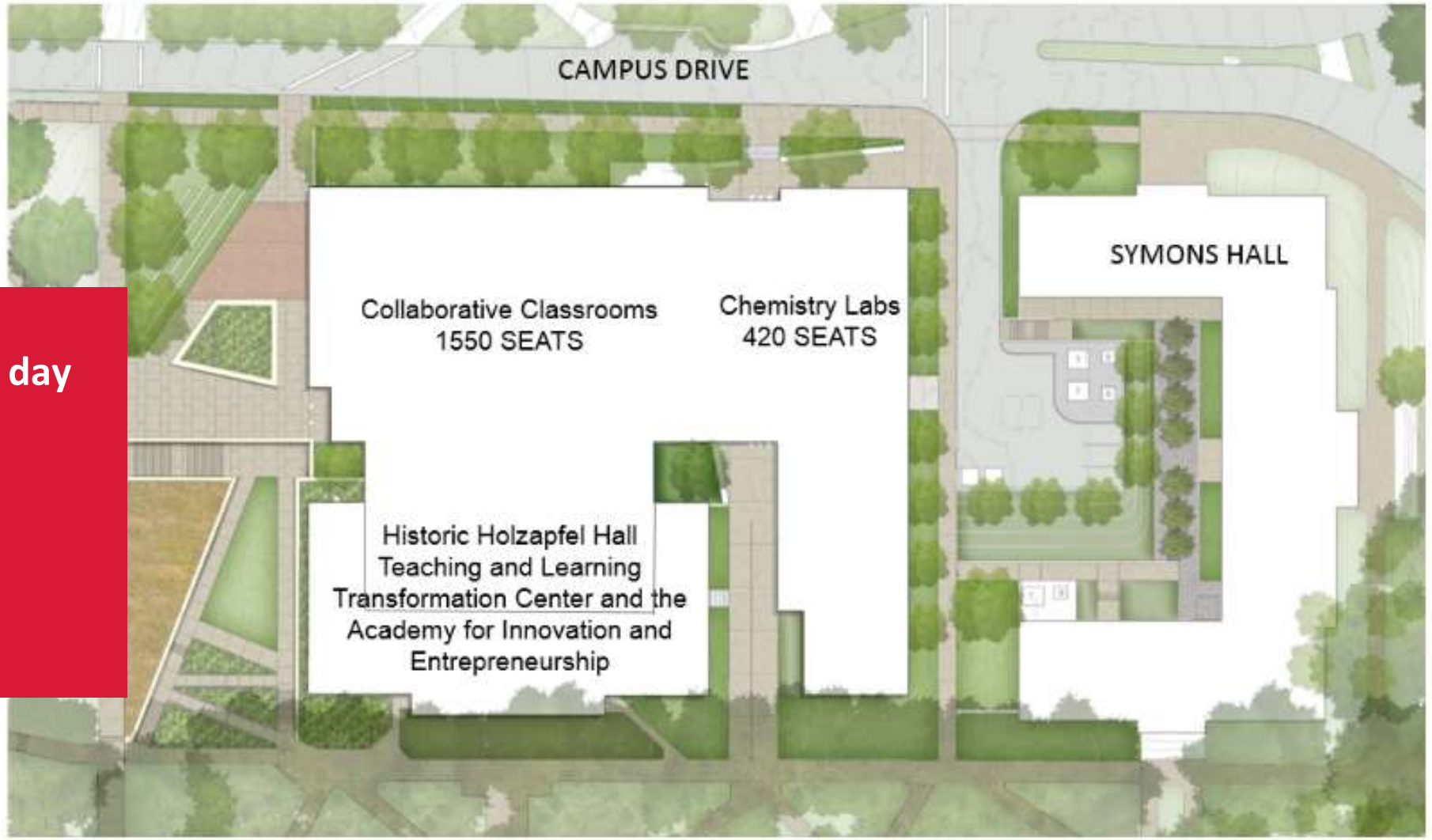
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

Ayers Saint Gross

10,000 students per day

187,750 GSF

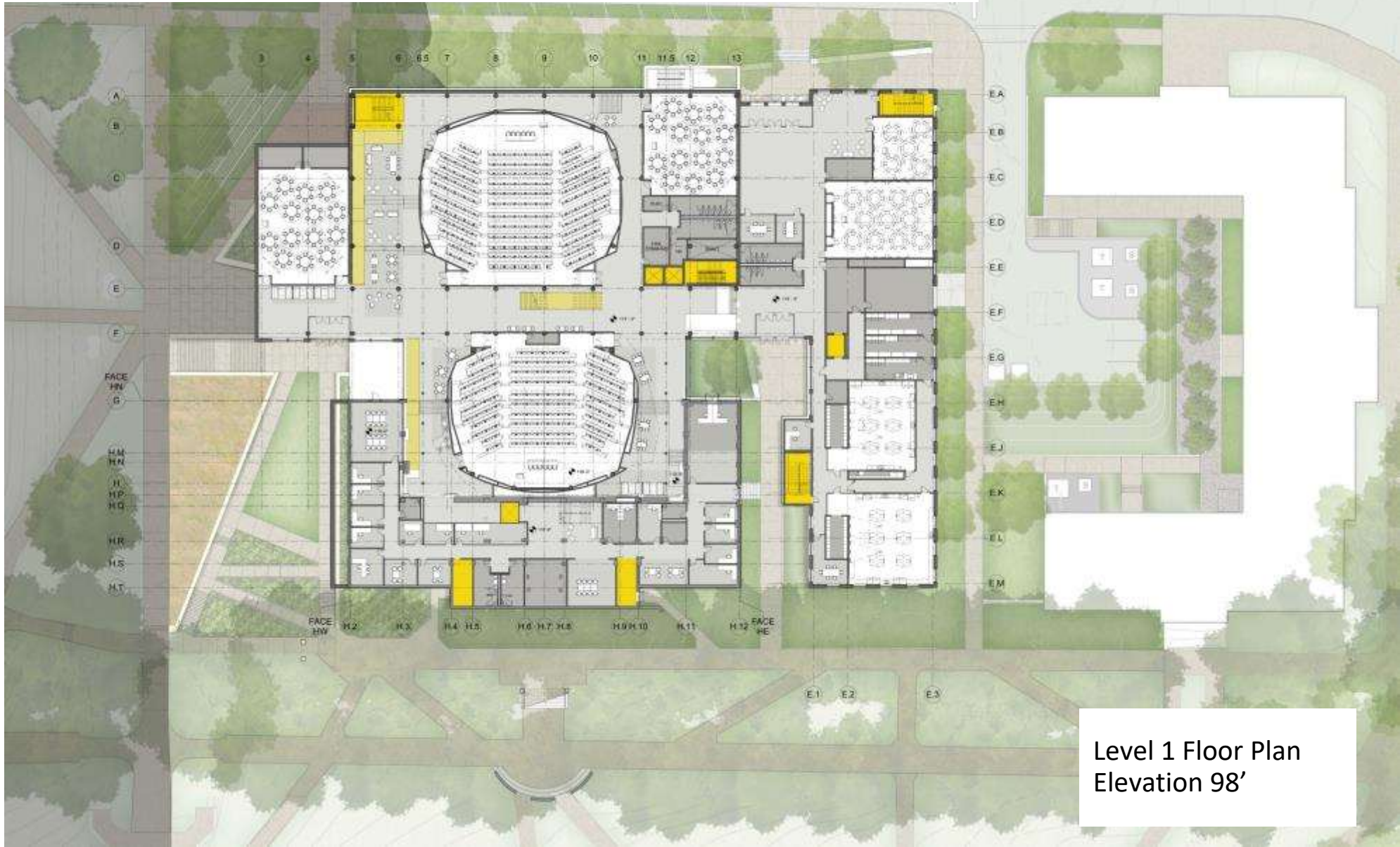
$111 Million



University of Maryland College Park
The Edward. St. John Learning and Teaching Center

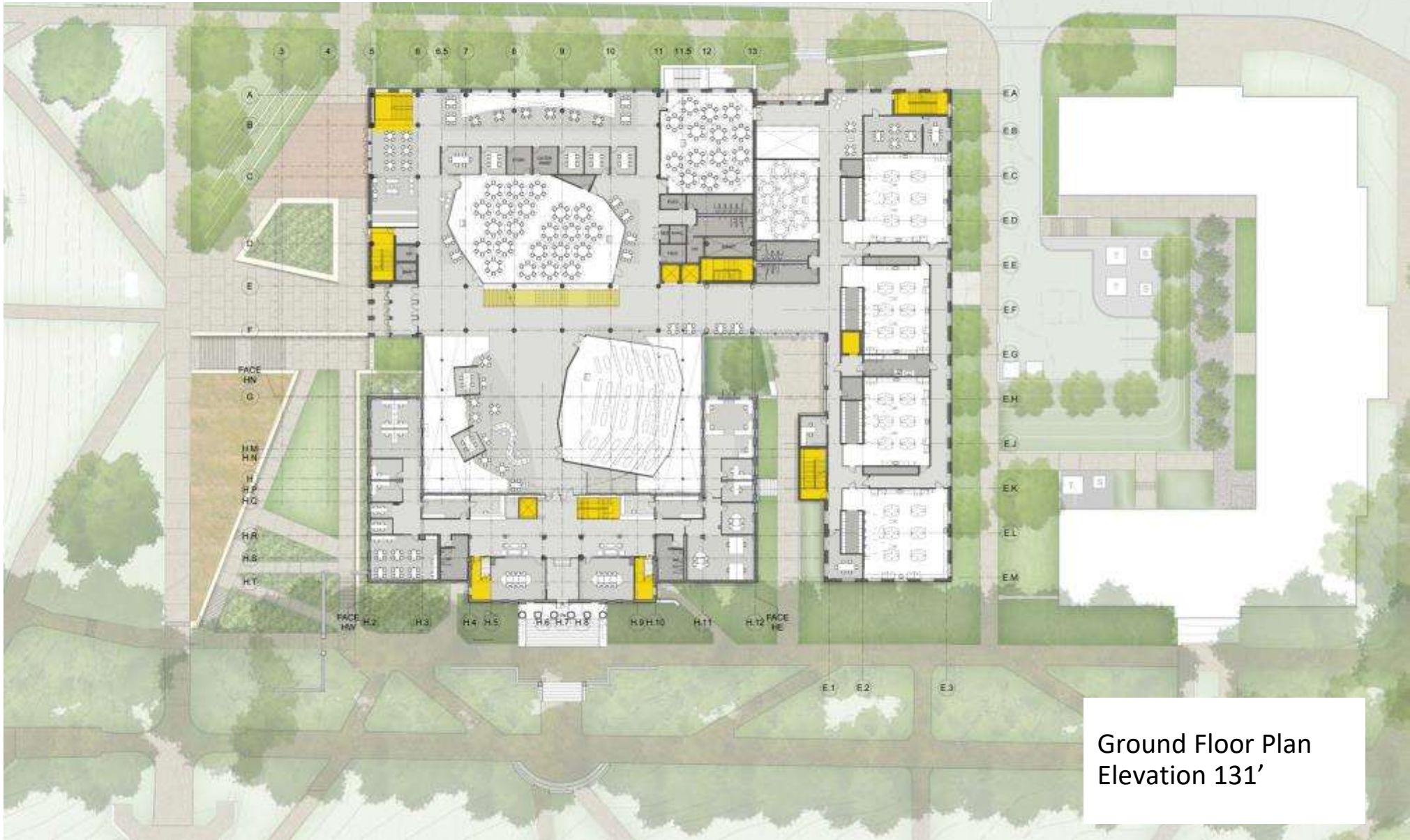
Academy for Innovation + Entrepreneurship

University of Maryland College Park
The Edward. St. John Learning and Teaching Center



Level 1 Floor Plan
Elevation 98’

University of Maryland College Park
The Edward. St. John Learning and Teaching Center



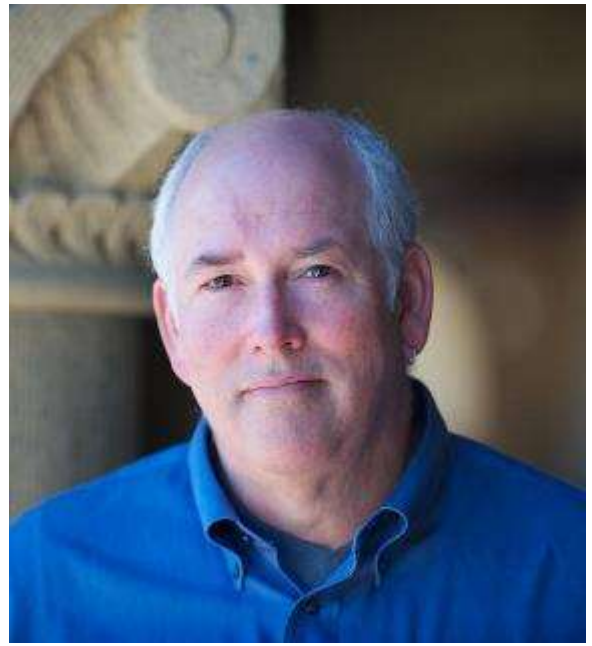
Ground Floor Plan
Elevation 131’

Questions and Conversation









Webinar Outline

I. Introductions

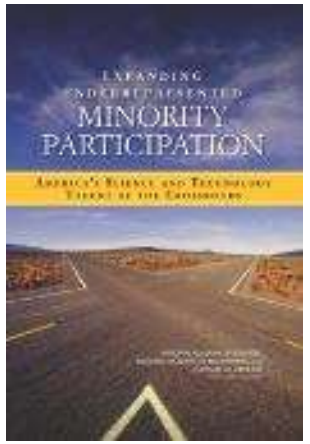
II. Investing in evidence-based research on learning

III. Investing in integrated planning

IV. Investing in the institutional future

Success may also hinge on the extent to which … students participate in activities— such as peer-to-peer support, study groups, social activities, tutoring, and mentoring programs—that can promote academic success and social integration."

—National Academy of Sciences, et al. *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads. Washington, DC: The National Academies Press, 2011.*



Oregon State University— Learning Innovation Center (LInC)

Bora Architects

ORIGINAL PROGRAM

State-of-the-art classrooms to meet a variety of teaching and learning styles. A projection of requirements for new modern classroom space includes:

(1) 600-1200 seats
(1) 400 seats
(2) 300 seats
(1) 250 seats
(1) 200 seats

(1) 150 seats
(2) 125 seats
(2) 80 seats
(3) 60 seats
(2) 35 seats

OSU Oregon State University BORA

UNIVERSITY GOAL

INCREASE RETENTION + GRADUATION RATES

ENHANCE **LEARNING & ENGAGEMENT** AT OSU

and

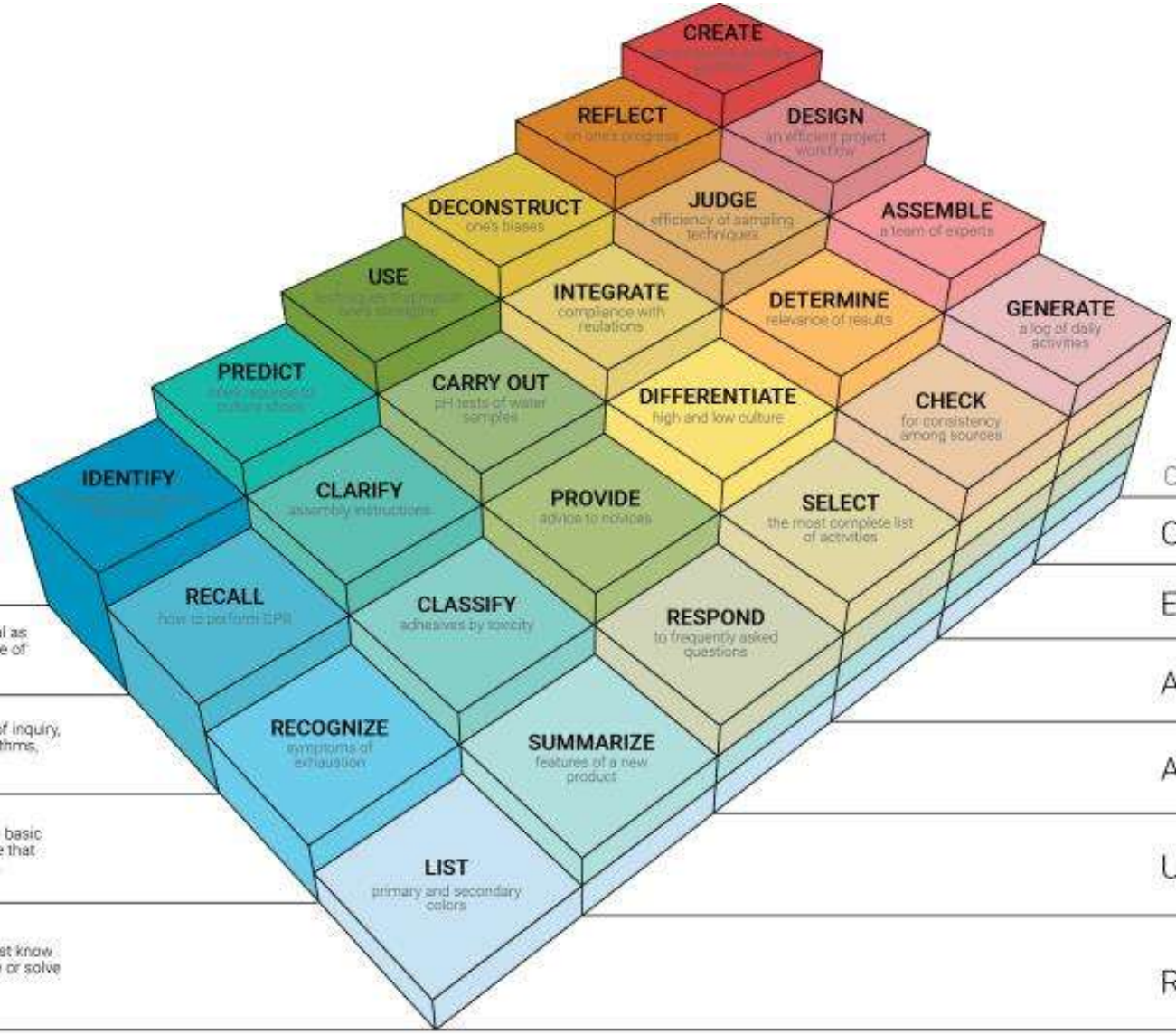
ACCOMMODATE **GROWTH** OF THE STUDENT POPULATION

PROJECT GOALS

CREATE AN INSPIRING TEACHING LABORATORY FOR THE CAMPUS

PROMOTE ACTIVE LEARNING AND ENGAGEMENT ACROSS ALL ABILITIES AND AT ALL SCALES OF CLASS SIZES

ENHANCE INTERACTIONS AMONGST AND BETWEEN ALL USER GROUPS TO CULTIVATE VIBRANT COMMUNITY



KNOWLEDGE DIMENSION

METACOGNITIVE	Knowledge of cognition in general as well as awareness and knowledge of one's own cognition.
PROCEDURAL	How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods.
CONCEPTUAL	The interrelationships among the basic elements within a larger structure that enable them to function together.
FACTUAL	The basic elements students must know to be acquainted with a discipline or solve problems in it.

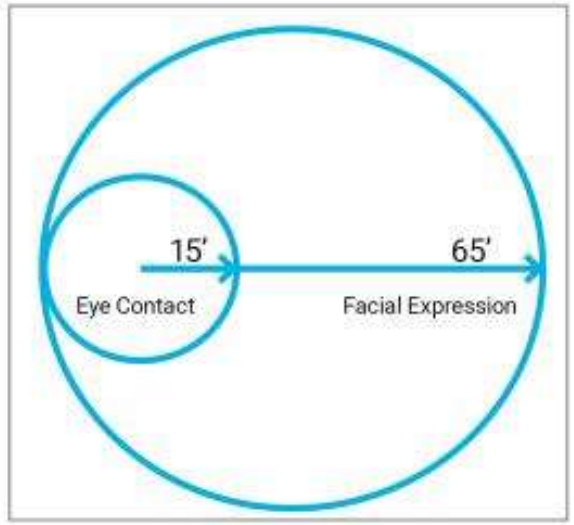
COGNITIVE PROCESS DIMENSION

CREATE	Put elements together to form a coherent whole; reorganize into a new pattern or structure
EVALUATE	Make judgements based on criteria and standards
ANALYZE	Break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose
APPLY	Carry out or use a procedure in a given situation
UNDERSTAND	Construct meaning from instructional messages, including oral, written, and graphic communication
REMEMBER	Retrieve relevant knowledge from long-term memory

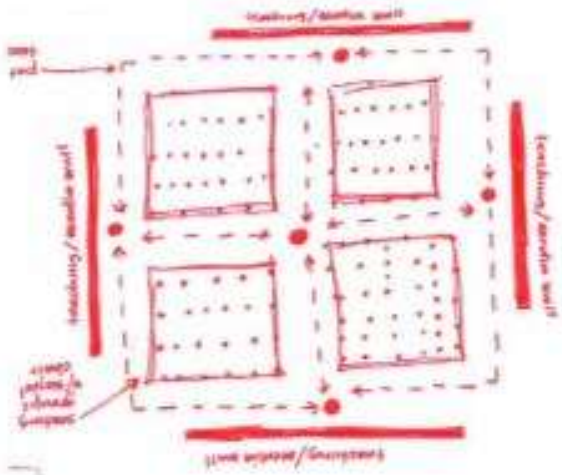
Model created by: Rex Heer
Iowa State University
Center for Excellence in Learning and Teaching
Updated January, 2012

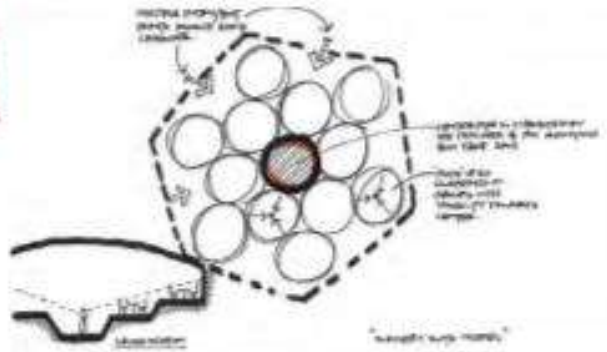
For additional resources, see:
www.celt.iastate.edu/teaching/RevisedBlooms1.html

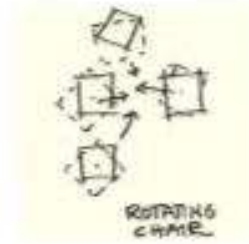
ACTIVE LEARNING Spatial Characteristics

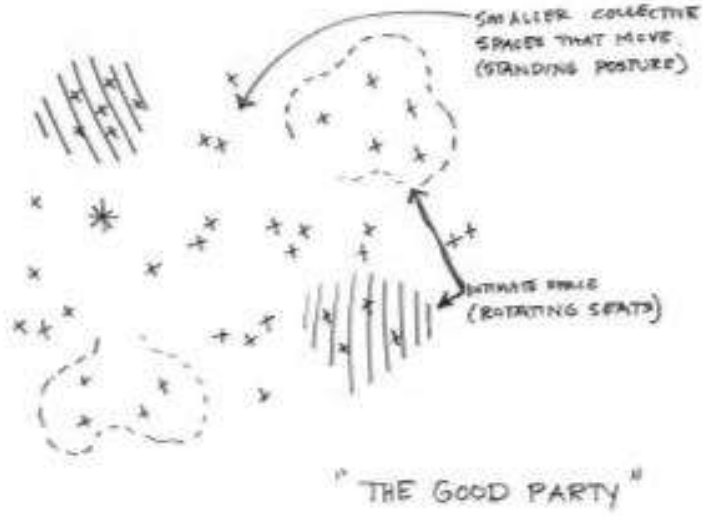


Visibility	Proximity	Mobility	Flexibility
To Faculty	Eye Contact	Of Faculty	Furniture
To Media	Facial Expression	Of Students	Space
To Peers	Shared Work Surface	Of Media	Over Time

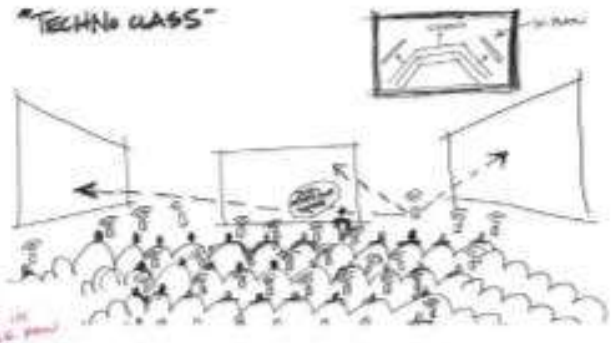


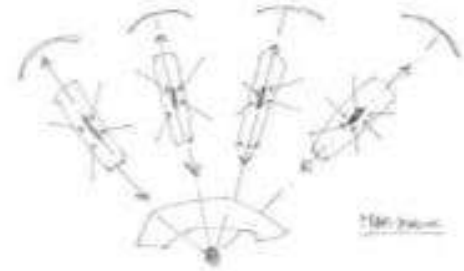


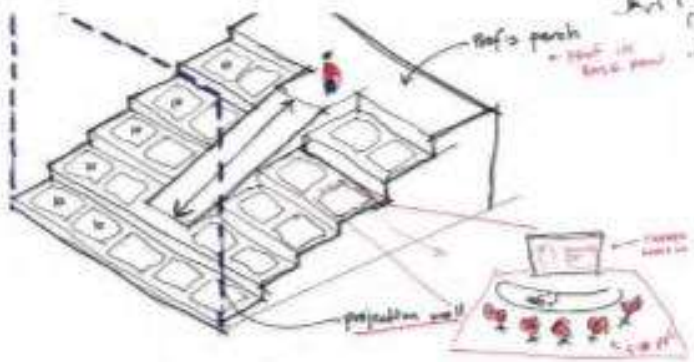


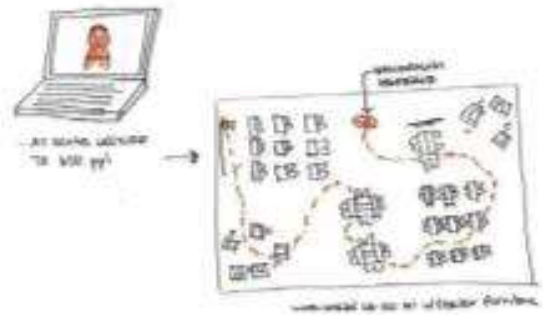


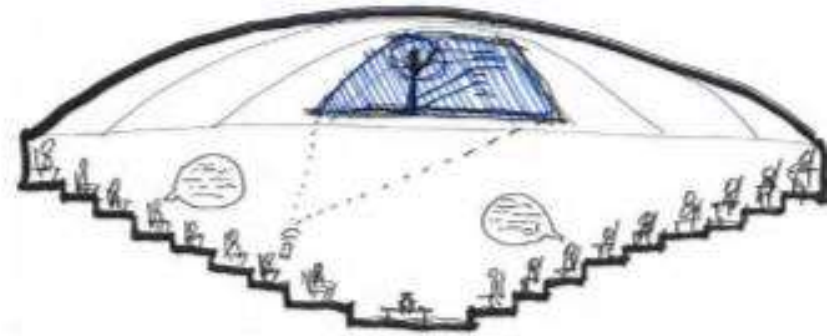
What does active learning look like?







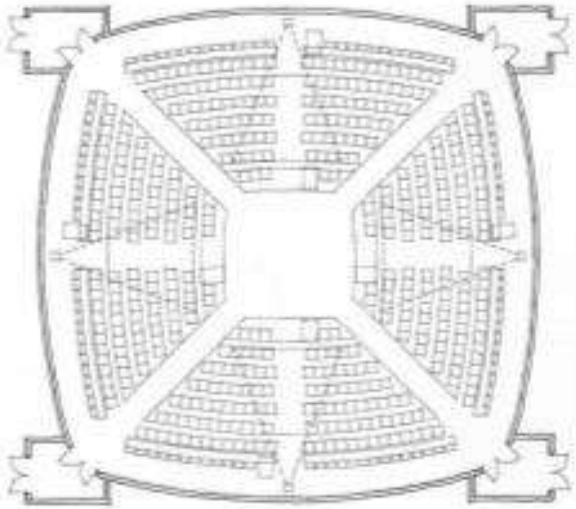




INNOVATIONS AND CONCEPTS

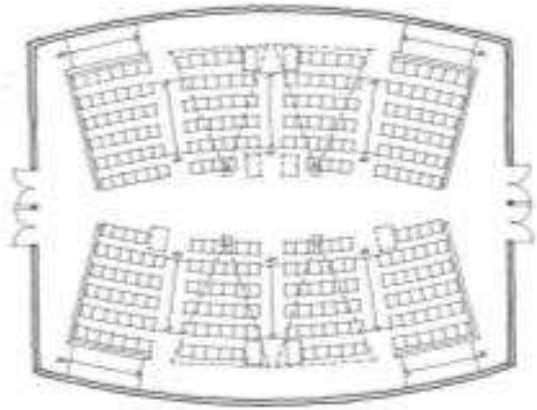
PHIL DONAHUE

500-600 seats
16 sf/seat



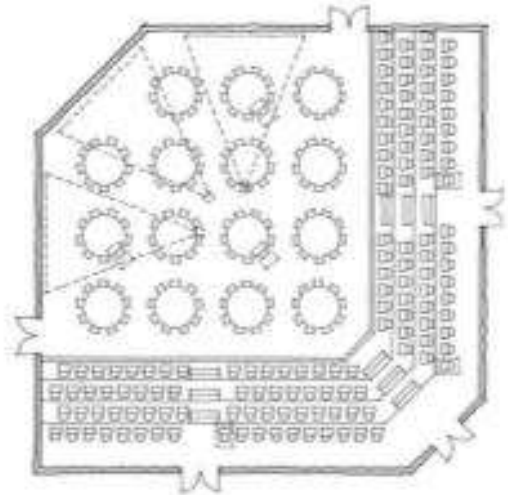
PARLIAMENT

200-300 seats
16 sf/seat



CLUB LOUNGE

200-300 seats
20 sf/seat



VERIFICATION

Course Section Assignments

From this screen, you can display, add, change and delete data pertaining to Course Section Assignments.

Schedule: Default Schedule **Schedule Result:** MS May 21 - 2nd run **Status:** Assigned Dropped Removed

Course: **Course Term:**

Date: **Teacher:** Search

Add Course Assignment | Drop All Assignments | Schedule Study Halls | Save Changes | Cancel Changes

Course	Course Name	Section	Meeting	Teacher	Term	Type	Status	Start Date	End Date
H308	H308	1	00 (308)	MICHELLE Teacher1723	All Year	Batch	Assigned	Sep 01, 2009	
950	AP ENGLISH	1	01 (312)	Katherine Teacher1775	All Year	Batch	Assigned	Sep 01, 2009	
1224	PHYSICS I	1	02 (111)	SHELBY Teacher1938	All Year	Manual	Assigned	Sep 01, 2009	
635	LATIN IV	1	03 (133)	QUINN Teacher1754	All Year	Batch	Assigned	Sep 01, 2009	
SA4	SA4	2	04 (201)	CAROLYN Teacher1840	2nd Semester	Manual	Assigned	Jan 25, 2010	
741	STRENGTH & CONDITIONING	1	51,52 (FHT)	MARK Teacher1816	1st Semester	Manual	Assigned	Sep 01, 2009	
741	STRENGTH & CONDITIONING	2	51,52 (FHT)	MARK Teacher1816	2nd Semester	Manual	Assigned	Jan 25, 2010	
Lun1	Lunch 1	3	53 (CAFE)	SARAH Teacher2002	1st Semester	Batch	Assigned	Sep 01, 2009	
Lun2	Lunch 2	3	53 (CAFE)	SARAH Teacher2002	2nd Semester	Batch	Assigned	Jan 25, 2010	
1230	ANATOMY AND PHYSIOLOGY	2	06 (106)	MICHAEL Teacher1799	All Year	Batch	Assigned	Sep 01, 2009	

Armory Lecture Hall

Introductory Math
Spring 2013

UNIVERSITY OF MARYLAND

AYERS SAINT GROSS

Active Learning (despite the classroom!)

Introductory Physics for Life Sciences
Fall 2013

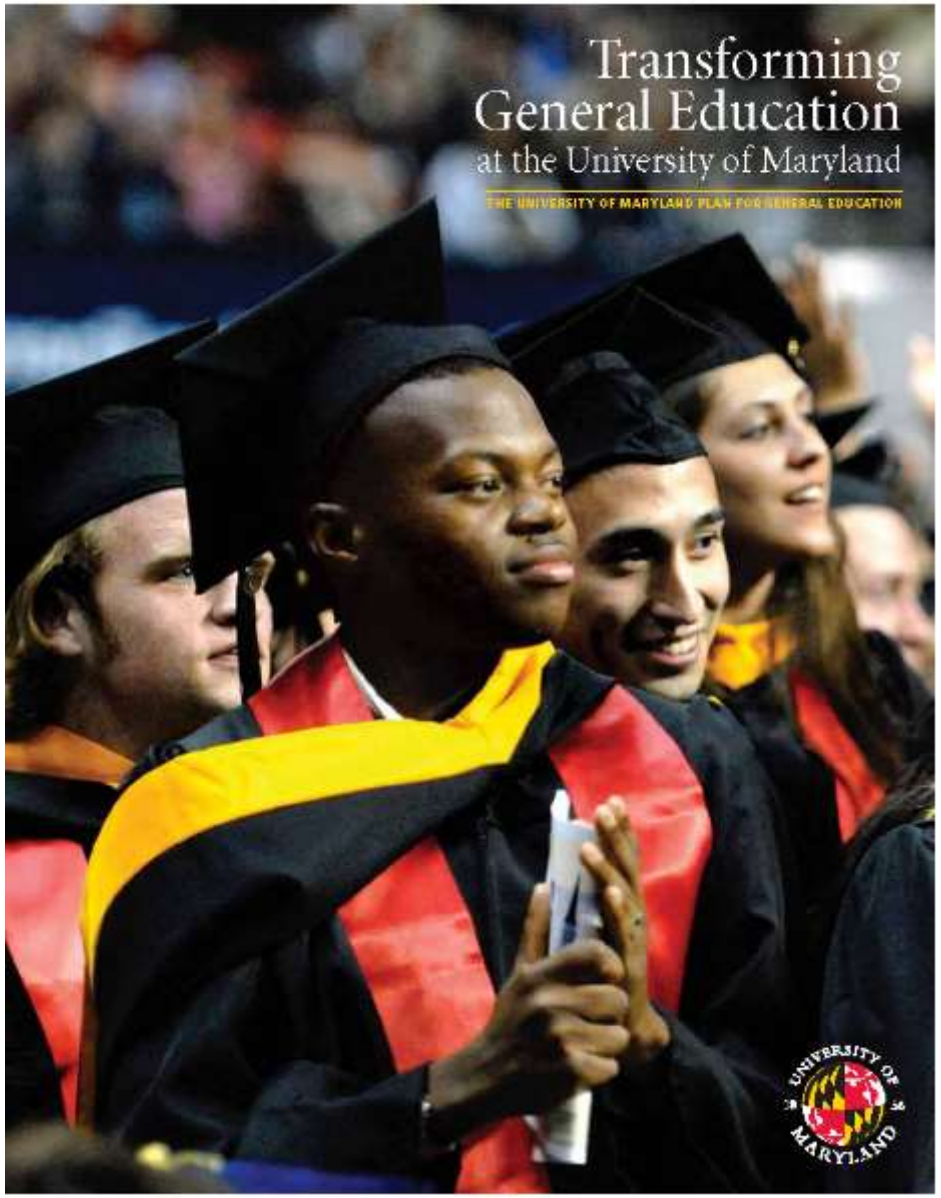
General Education Curriculum

Implemented Fall 2012

Goals and expected outcomes:

- Develop skills in
  - Clear Writing
  - Effective Communication
  - Critical Reasoning
  - Analytic Reasoning
  - Effective Presentation Skills
- Strengthen knowledge in major areas of study
- Broaden knowledge of civilizations past and present
- Establish the ability to thrive both intellectually and materially
- Define the ethical imperatives necessary to create a just society in their own communities and in the larger world.

http://www.gened.umd.edu/



I-Series

Imagination Innovation Issues Implementation Investigation Inspiration Intellect

Signature courses for the General Education Program at the University of Maryland

CRITICAL REASONING AND PROBLEM SOLVING

All 12 academic colleges participate:

80 – 120 students per course – engaged and interactive learning to make students THINK

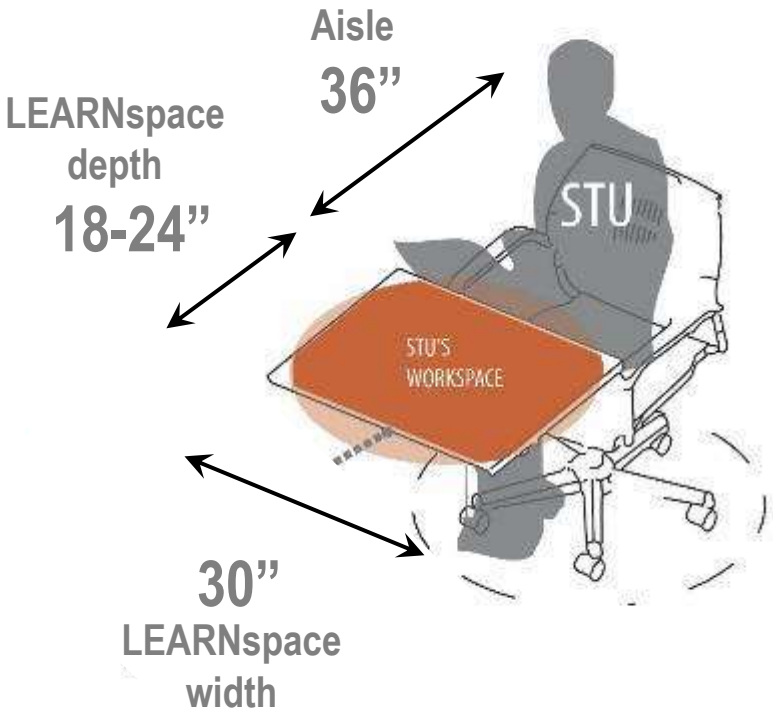
Approach large problems from particular (inter)disciplinary perspectives with the aim to examine the ways in which diverse intellectual traditions and disciplinary protocols address big questions.

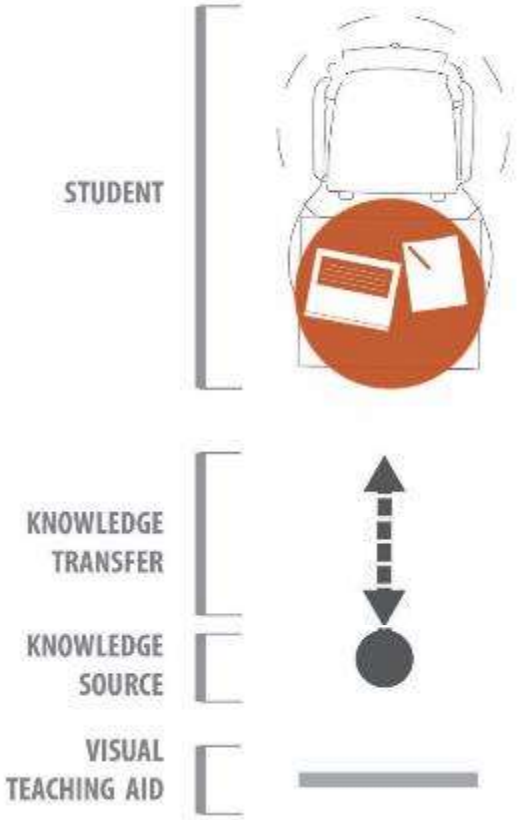
Stakeholder Involvement

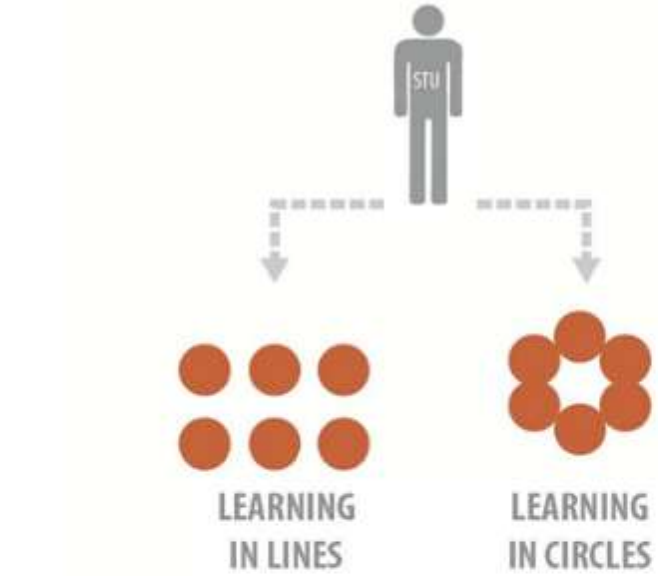
Summer 2012

Student- Centered Research

STU **Student Temporal Unit**







Precedent Tours and Interviews

UNIVERSITY OF VIRGINIA

RICE HALL, SCHOOL OF ENGINEERING, OLSSON AUDITORIUM

Precedent Research

JOHNS HOPKINS UNIVERSITY, CAREY SCHOOL OF BUSINESS

Collaborative tiered - two rows per tier

Precedent Tours and Interviews

UNIVERSITY OF VIRGINIA

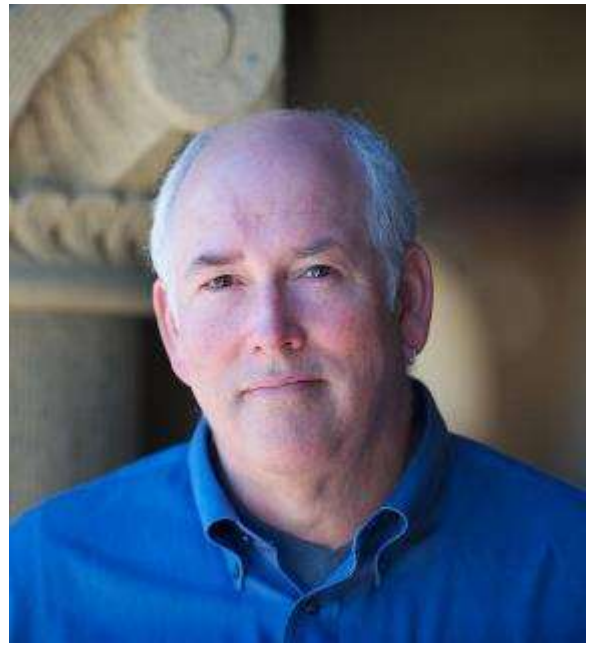
MOORE HALL, MEDICAL EDUCATION BUILDING

Questions and Conversation









Webinar Outline

I. Introductions

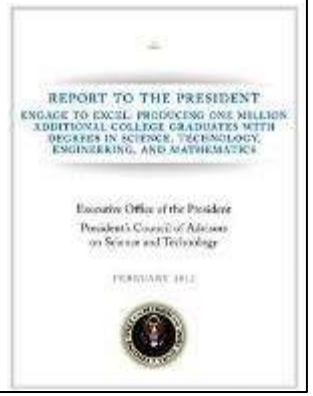
II. Investing in Evidence-Based Research on Learning

III. Investing in Integrated Planning

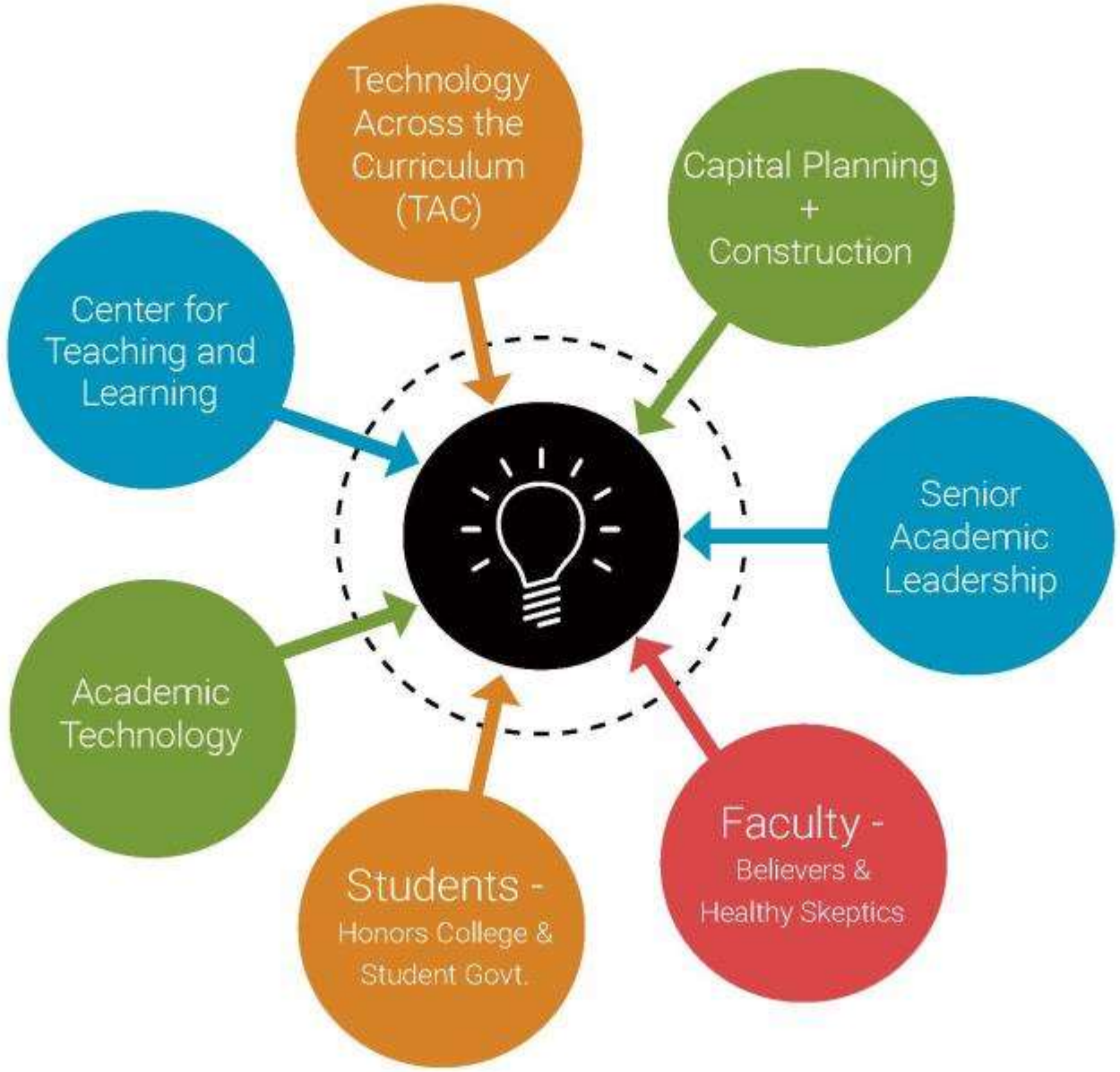
IV. Investing in the Institutional Future

People are usually resistant to change. One reason that many faculty may maintain traditional teaching practices is that they have been successful in their fields and therefore assume that the educational approaches that taught them so effectively are appropriate for all students. But resistance to change is human and has been confronted successfully in numerous other settings. The study of individual, organizational, and cultural change is a sophisticated field that can inform the design of transformation strategies for STEM education in the first two years of college.

—President's Council of Advisors on Science and Technology. Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics, 2012.



BUILDING COMMITTEE

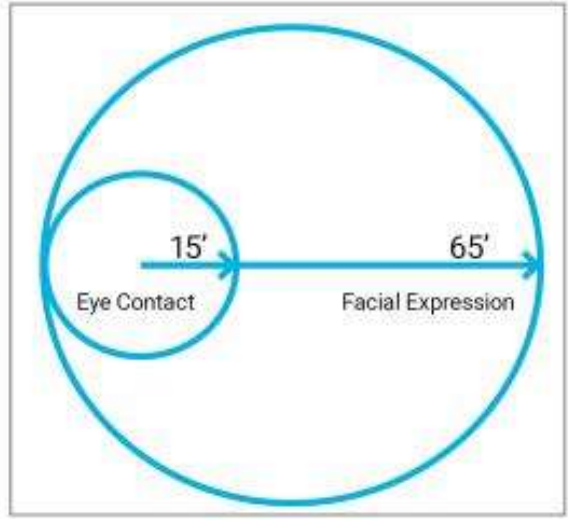


Oregon State University—Learning Innovation Center (LInC)

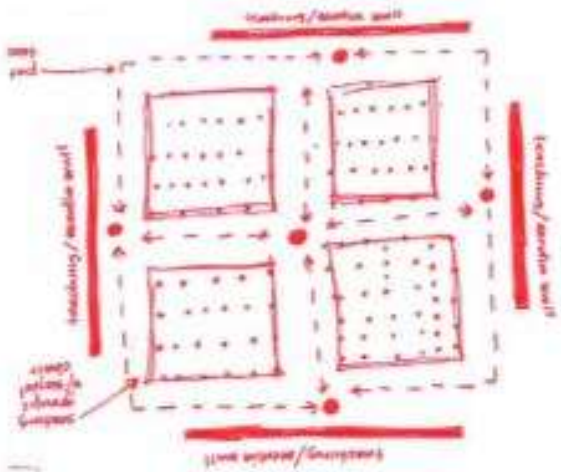
Bora Architects

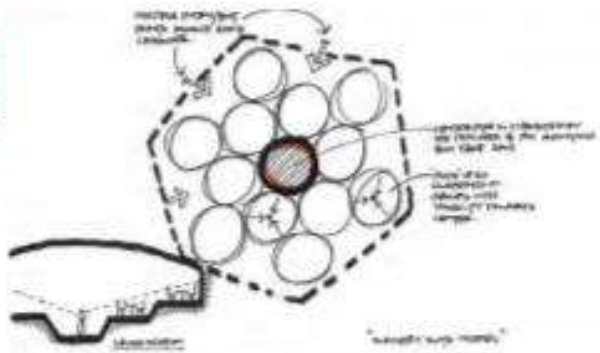
OSU Oregon State University BORA

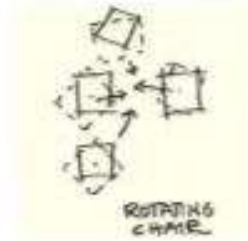
ACTIVE LEARNING Spatial Characteristics

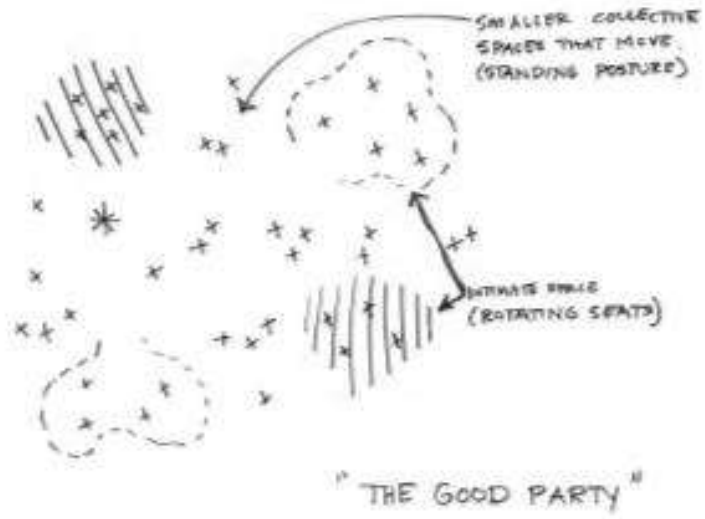


Visibility		Proximity		Mobility		Flexibility	
To Faculty		Eye Contact		Of Faculty		Furniture	
To Media		Facial Expression		Of Students		Space	
To Peers		Shared Work Surface		Of Media		Over Time	

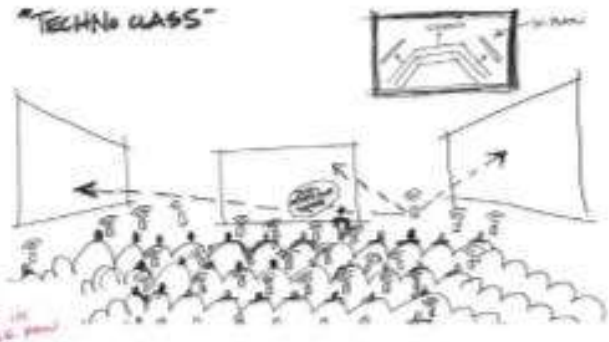


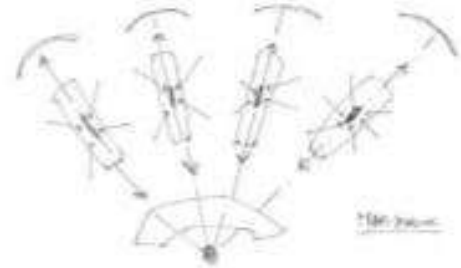


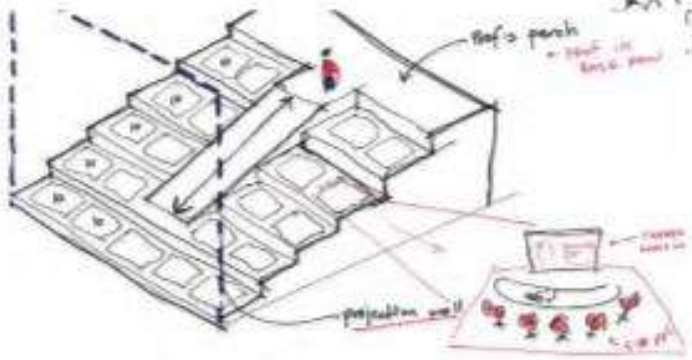


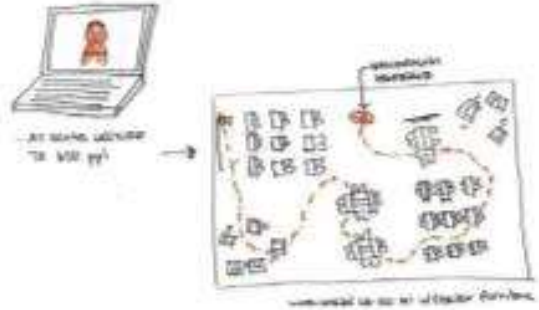


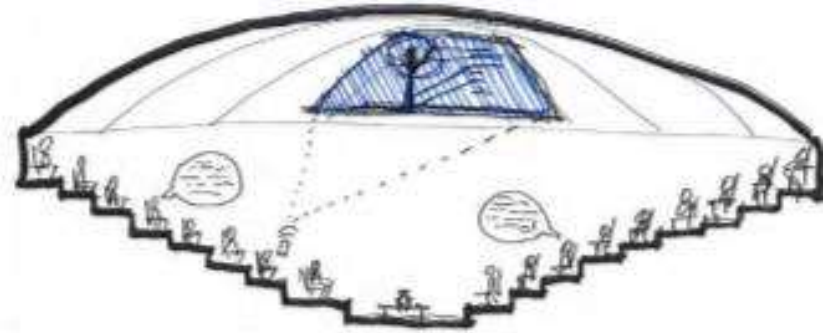
What does active learning look like?





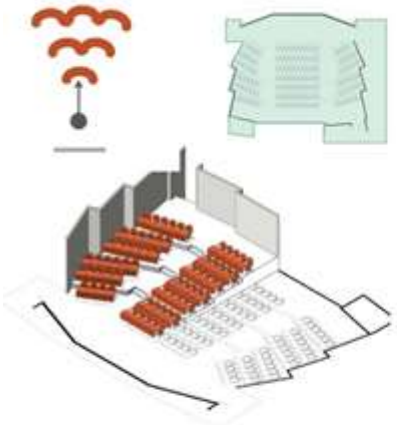






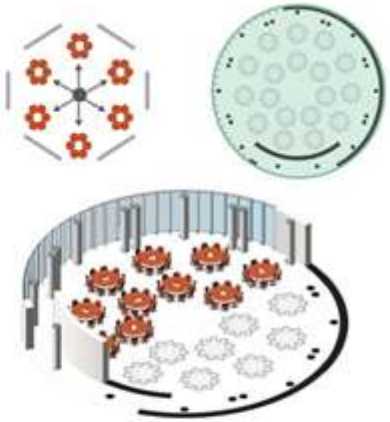

Energy Balance
Basal Metabolic Rate (BMR) - energy used to maintain basic body functions
– 60 to 75% of TEE = Basal metabolism
– More lean tissue increases your BMR
– BMR decreases with age
Energy Balance

Active Learning Environment Research



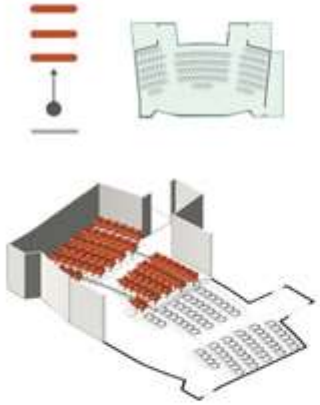
3377 ft²
136 stu
24 ft²/stu

UNIVERSITY OF VIRGINIA, RICE HALL



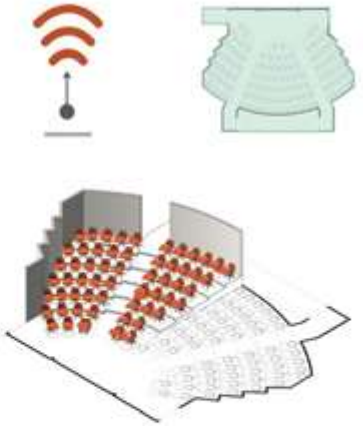
4845 ft²
162 stu
30 ft²/stu

UNIVERSITY OF VIRGINIA, MOORE HALL



3020 ft²
121 stu
25 ft²/stu

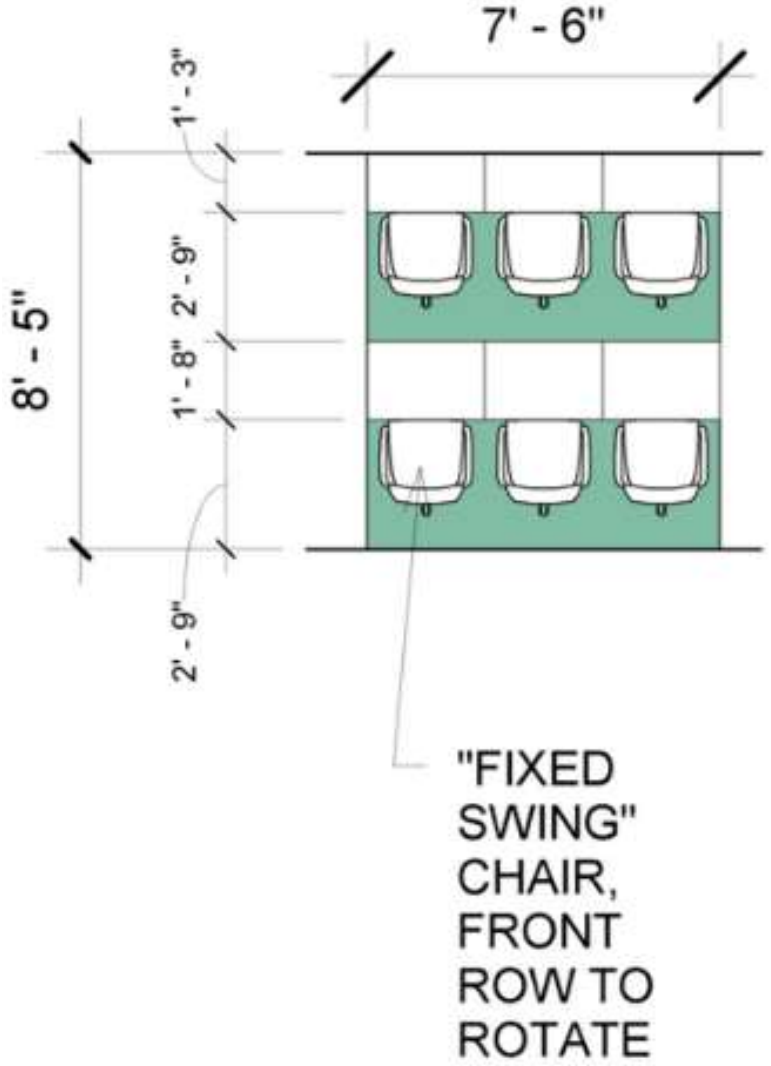
SALISBURY UNIVERSITY
TEACHER EDUCATION AND TECHNOLOGY CENTER



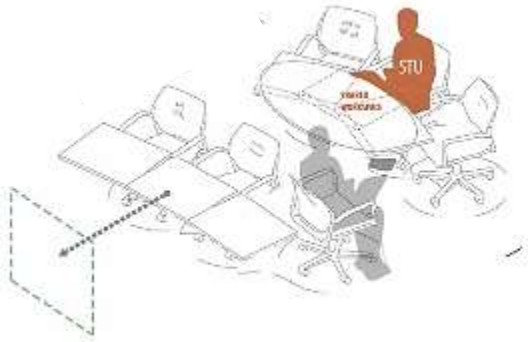
2890 ft²
123 stu
23 ft²/stu

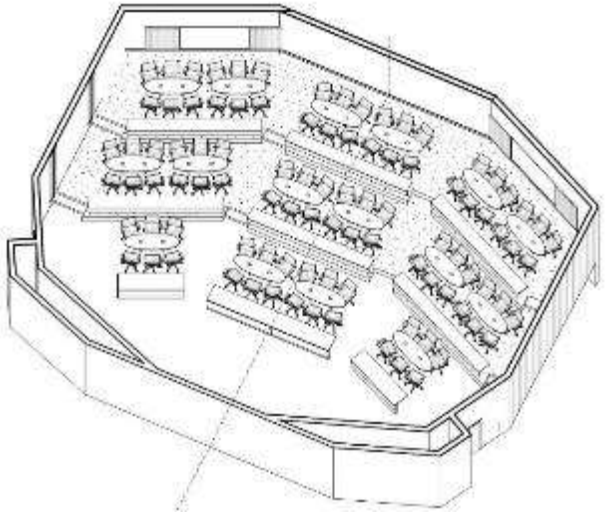
RADFORD UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS

Tiered Collaborative Teaming Module



Abstract Pedagogical Teaming Modules





AYERS SAINT GROSS

LEARNING SPACE CAPACITIES

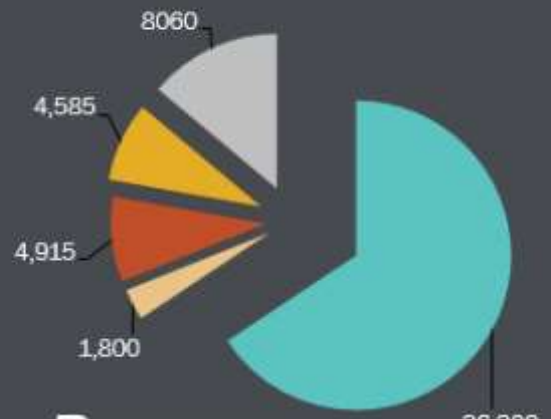
BASED ON TEAMING MODULE OF 6 STUDENTS

● POWER

	TIERED COLLABORATIVE ROWS	TIERED COLLABORATIVE ELLIPSE	FLAT COLLABORATIVE CIRCLE	TOTAL PER CAPACITY
78			4	4
132			1	1
156	1	2		3
248	1			1
328	1			1
TOTAL PER TEAMING MODULE	3	2	5	10

The Edward St. John Learning and Teaching Center Program

AYERS SAINT GROSS



Program

- Instructional Space Classroom/Lecture Halls
- Center for Teaching Excellence
- OIT's Classroom Technology Services Academic Support
- Study/Lounge Space
- Support

INSTRUCTIONAL SPACE

3	Quantity	FLAT COLLAB 78	Seating Capacity
1	Quantity	FLAT COLLAB 132	Seating Capacity
3	Quantity	TIERED COLLAB 156	Seating Capacity
1	Quantity	TIERED COLLAB 248	Seating Capacity
1	Quantity	TIERED COLLAB 328	Seating Capacity
9	Quantity	LABS 24	Seating Capacity
1	Quantity	FLAT COLLAB 30	Seating Capacity
1	Quantity	FLAT COLLAB 42	Seating Capacity
2	Quantity	FLAT COLLAB 66	Seating Capacity

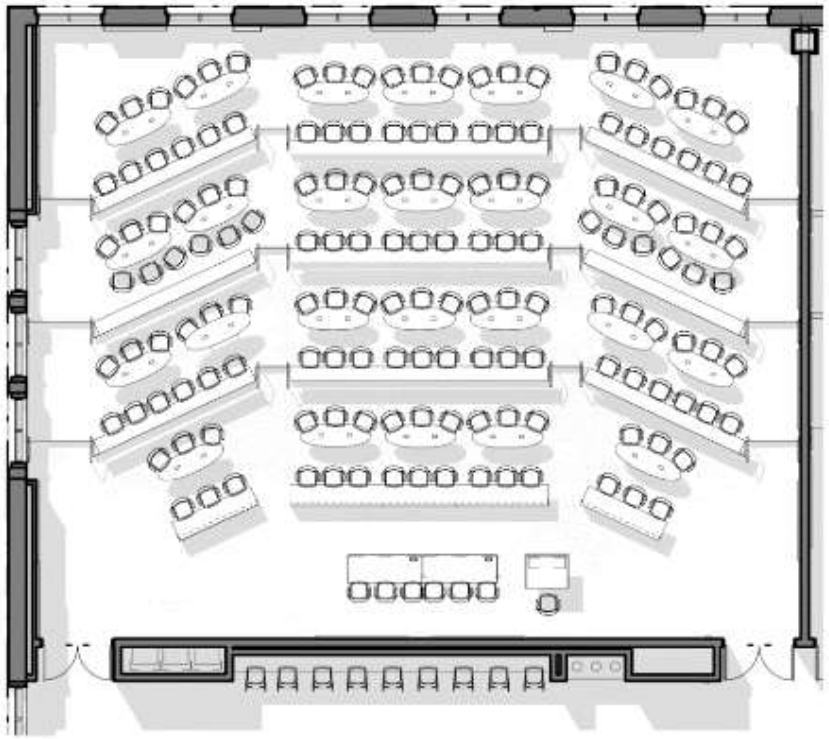
1830

Total Seating Capacity

Tiered Collaborative Ellipse Layout

UNIVERSITY OF MARYLAND

AYERS SAINT GROSS



TERP Classroom Prototypes

TAWES THEATER RENOVATION INTO CLASSROOMS

- Office Space for American Studies
- Six collaborative classrooms
  - Two 115 seat tiered
  - One 80 seat flat
  - Three 30 seat flat
- Opened Spring 2016

Classroom Prototypes

TAWES CLASSROOMS

TWS 1310- TERP 6Round Classroom

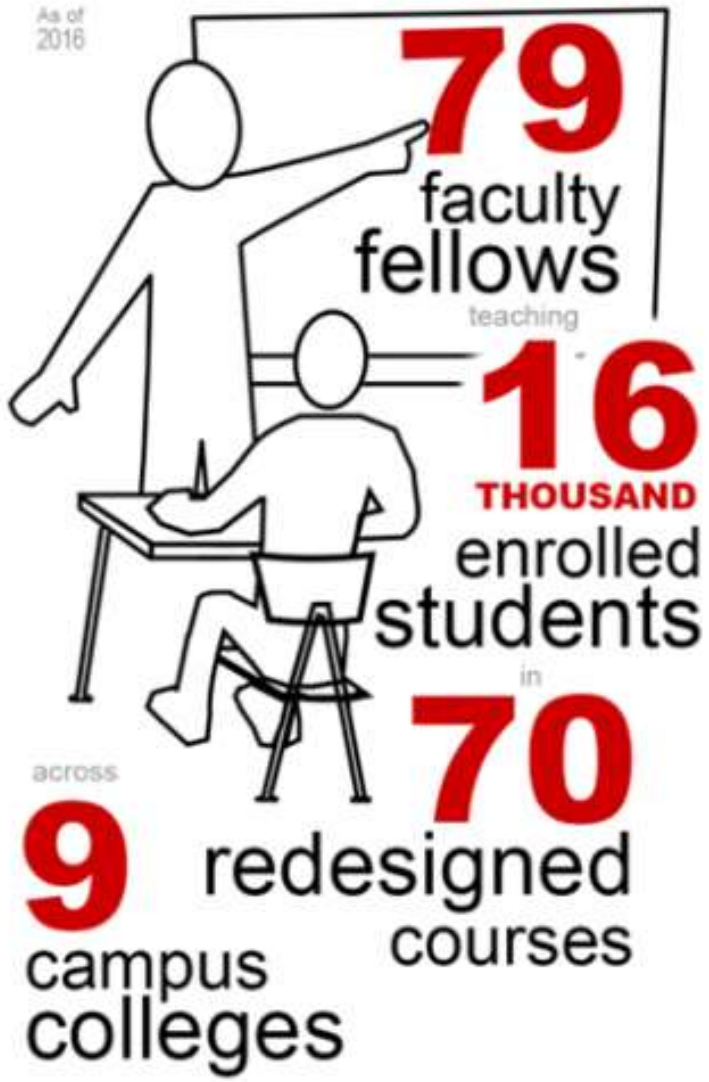
TWS 1313- TERP Eye2Eye Classroom

teaching & learning transformation center

University of Maryland

create. innovate. educate.

- "Elevate Fellows": faculty development
- University Teaching and Learning Program (graduate students)
- Individualized faculty consultations
- Academic Peer Mentoring (undergraduates)
- Learning Analytics Research Group




Improve teaching


Assess Learning

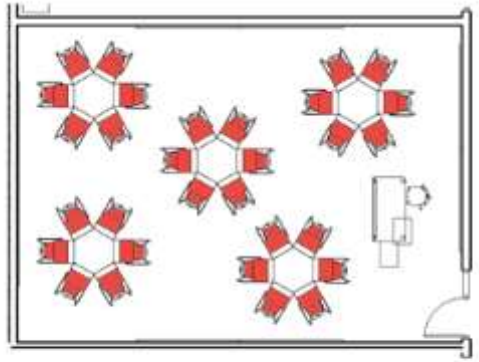

New Approaches


Reflective Practice

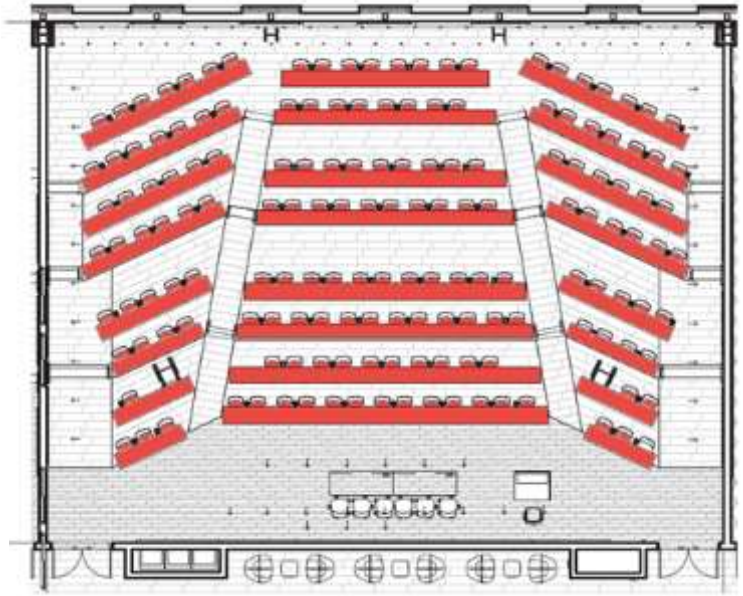
Classroom Prototypes

TERP CLASSROOMS

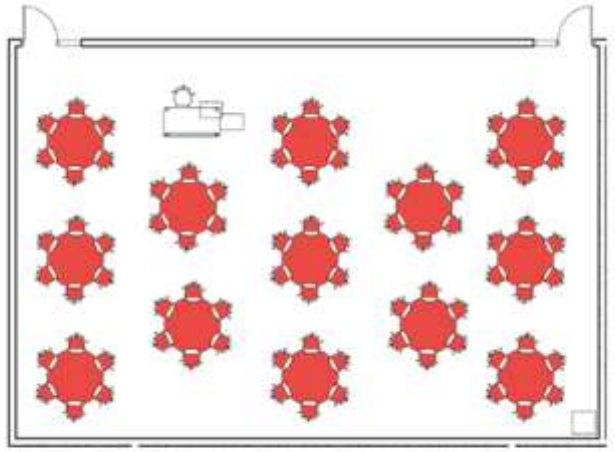
Teach, Engage, Respond, Participate



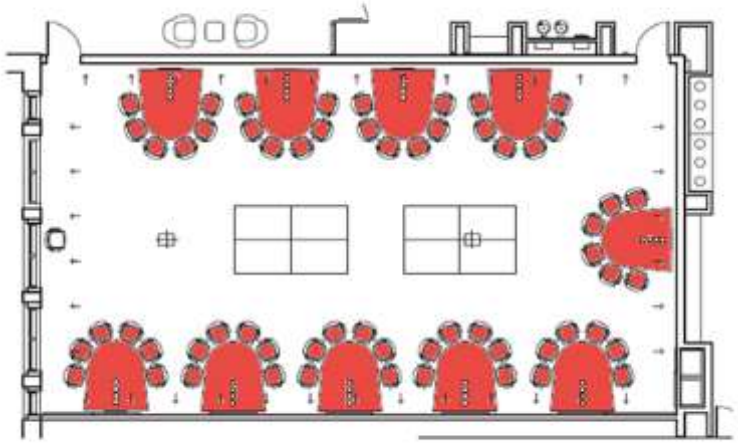
Eye2Eye



Tiered-Collaborative



6Round



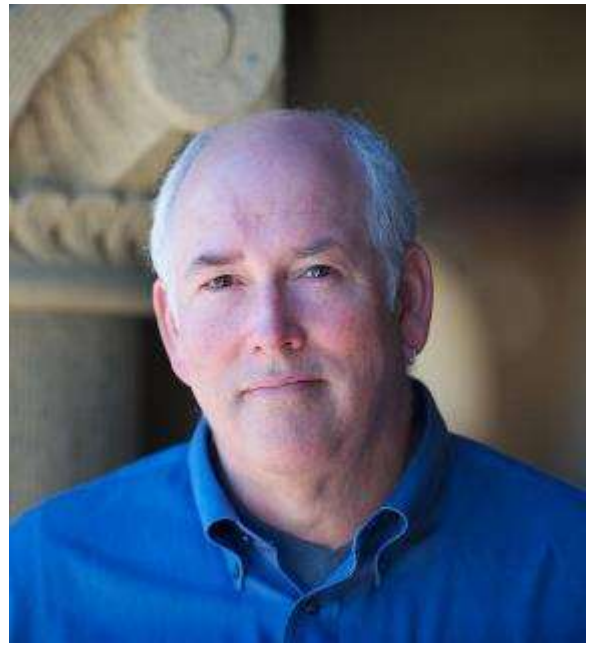
Media Share

Questions and Conversation









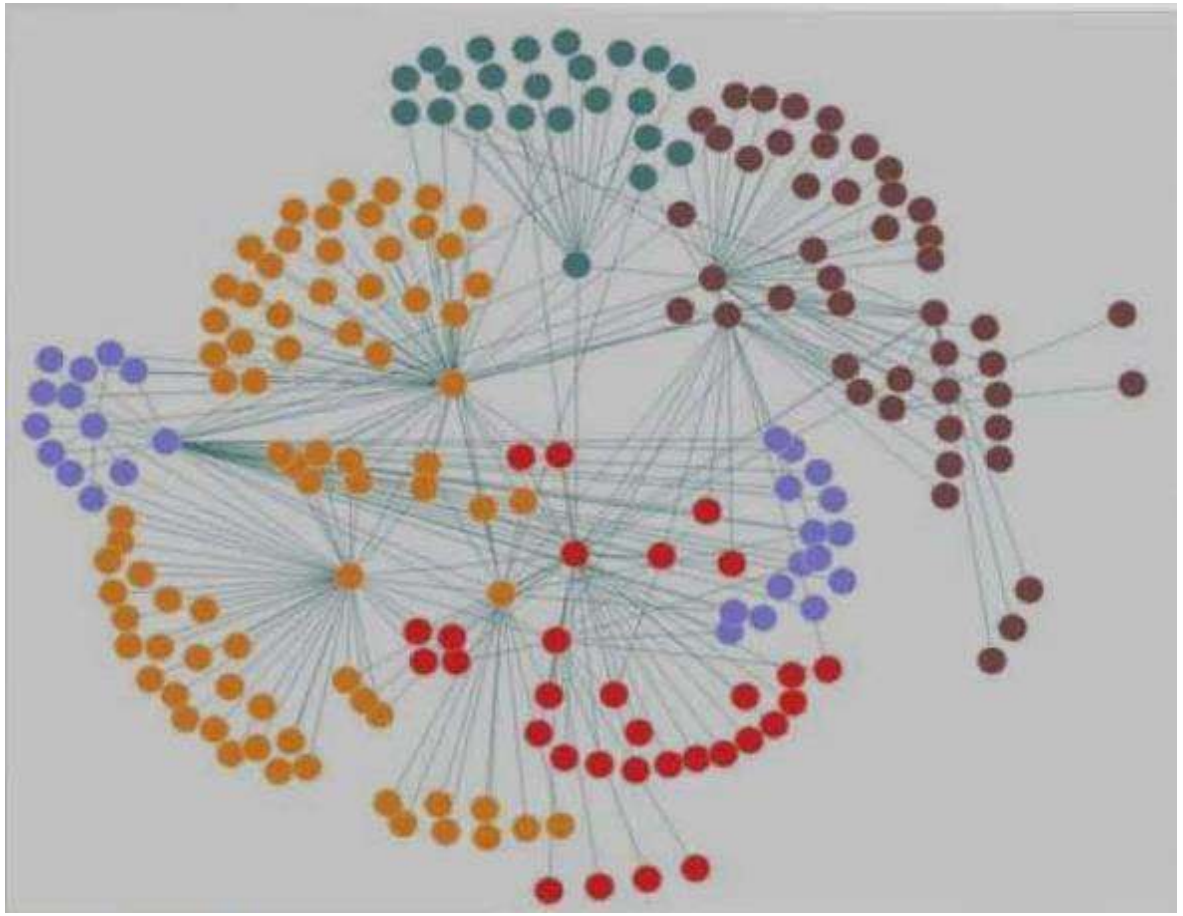
Webinar Outline

I. Introductions

II. Investing in evidence-based research on learning

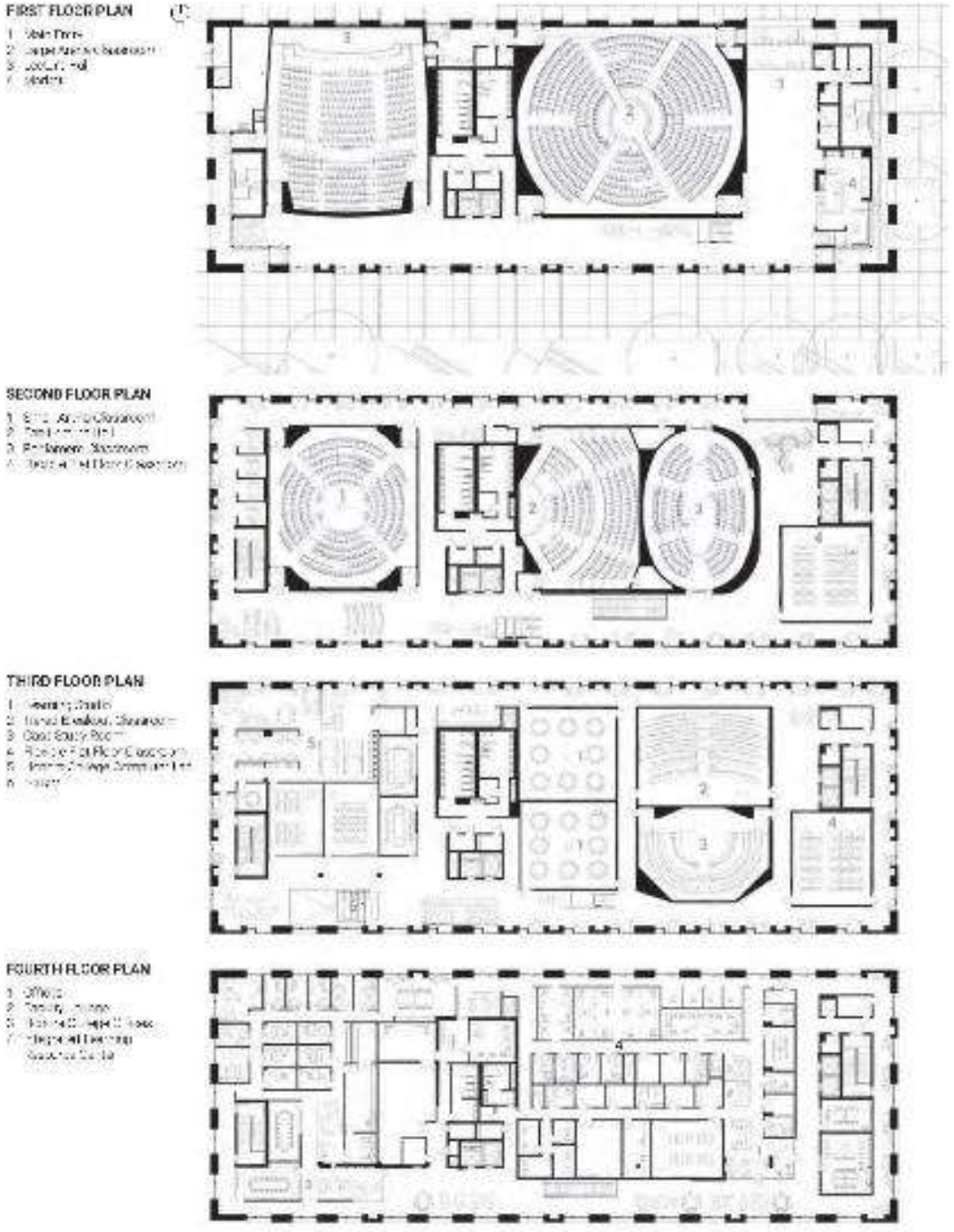
III. Investing in integrated planning

IV. Investing in the institutional future



Oregon State University— Learning Innovation Center (LInC)

Bora Architects




What are the Variables of Interest?


Golgi Apparatus, transport vesicles & lysosomes
Golgi: repackaging
Transport vesicles:
Secretory vesicles
Membrane renewal vesicles
Lysosomes: digestive enzymes
Channel 31

The Geometry of Learning: Executive Summary

What is it? The Geometry of Learning is a research framework designed to construct a large set of broad and deep knowledge about classroom learning spaces at Oregon State University (OSU).

What is the purpose? We are investigating whether and how physical characteristics of classrooms correlate to learning outcomes and teaching practices.

Why does it matter? Prior research shows that characteristics and conditions in classrooms do correlate to learning outcomes. If we identify these factors in OSU classrooms, we may plan to optimize the conditions for student success. Evidence-based findings about classroom values and learning will inform OSU's ongoing investment in classroom redesign.

What is being measured? Factors potentially related to student success.

- Student daily seat locations.
- Student learning outcomes (e.g. clicker responses, course grade percentile, GPA).
- Student attitudes and self-reported conditions (e.g. qualitative survey).
- Classroom values (e.g. light, sound, angle of vision, proximity to instructor, mobility).
- Validation of clicker method of seat location.
- Faculty experiences and strategies for teaching-in-the-round.

The Geometry of Learning: ***Tales from the learning circle***: Executive Summary

What is it? Tales from the learning circle is a research project designed to collect qualitative data from instructors who have taught in the LINC classrooms-in-the-round (LINC 100, 200, 228). This study is part of our comprehensive research agenda, *The Geometry of Learning*.

What is the purpose? The primary objective of this project is to discover themes related to teaching-in-the-round in order to provide material for teacher preparation and to report as findings about these unique classrooms as learning spaces.

What is the focus of study? Our primary research question is: What is the impact of learning space conditions on instructor's concept, practice, and assessment in teaching?

Why does it matter? Teacher preparation is a major factor in student experience and teaching-in-the-round is an unprecedented challenge in higher education. Organizing descriptions and advice from experienced instructors will be a valuable preparatory aid. Analysis of this data provides OSU a basis for assessing what does and noes not work in those learning environments.

What is being measured? We will measure descriptive and prescriptive responses from instructors based on their experiences of teaching-in-the-round.

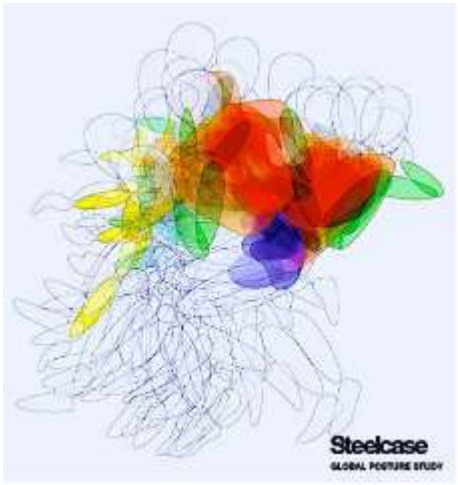
University of Maryland College Park
The Edward. St. John Learning and Teaching Center

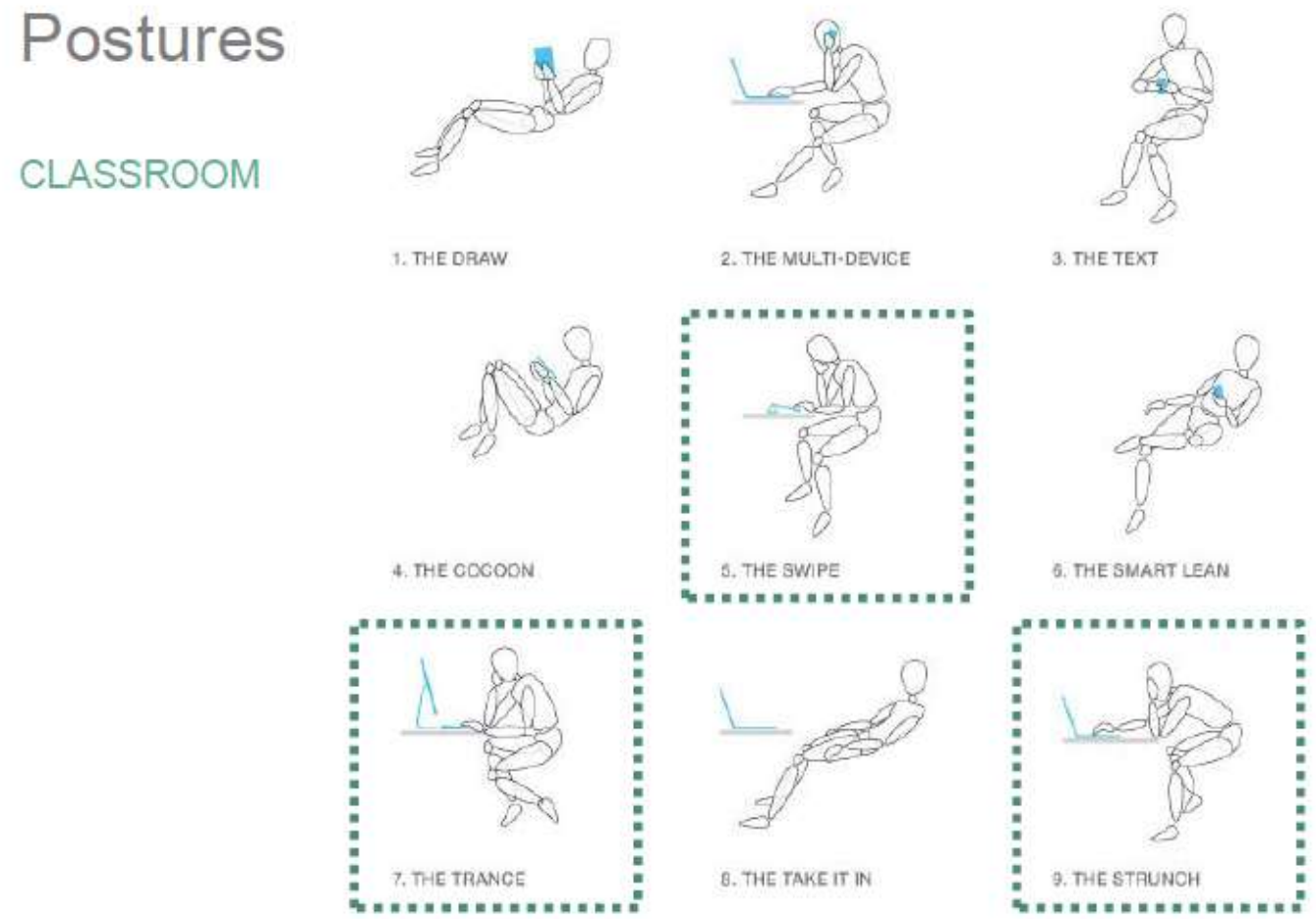
UNIVERSITY OF MARYLAND

AYERS SAINT GROSS

Student- Centered Research

Steelcase Global Posture Study



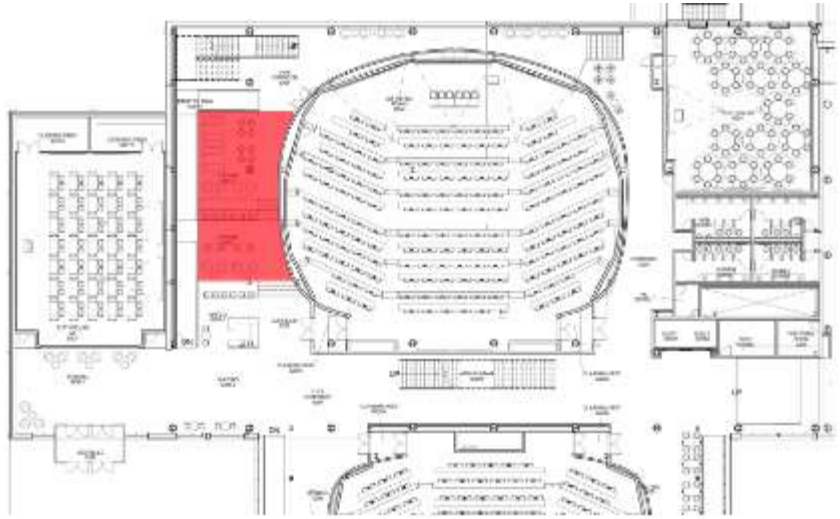


http://www.steelcase.com/en/products/category/seating/task/gesture/pages/global-posture-study.aspx

Student- Centered Research

Student Report

- Recommendations on layout of the informal spaces
- Black box classroom – interior designed by students



Academic Spaces Design Team

Recommendation Report

University of Maryland Student Government Association

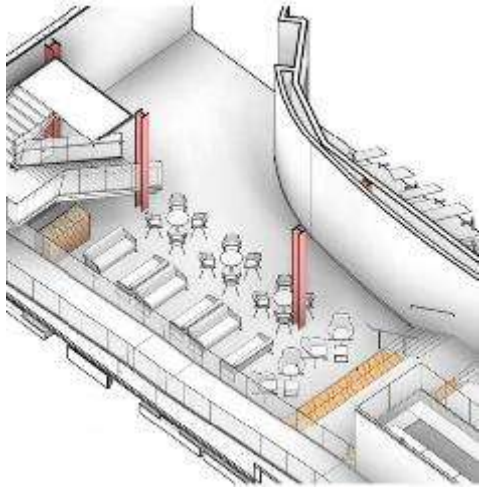
February 28th, 2014

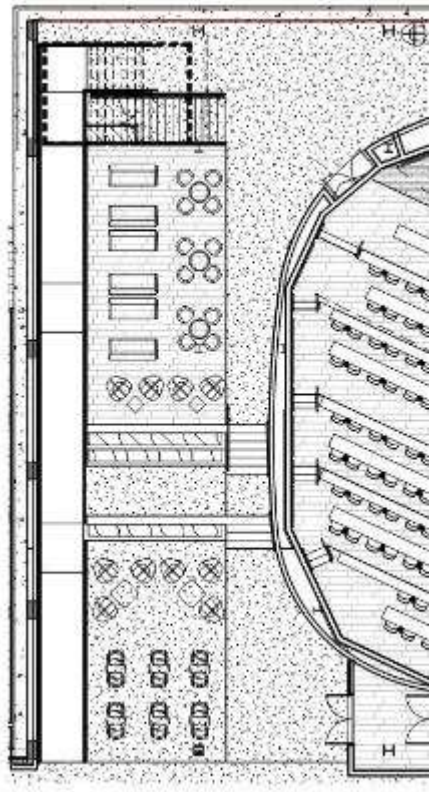
Academic Spaces Design Team:

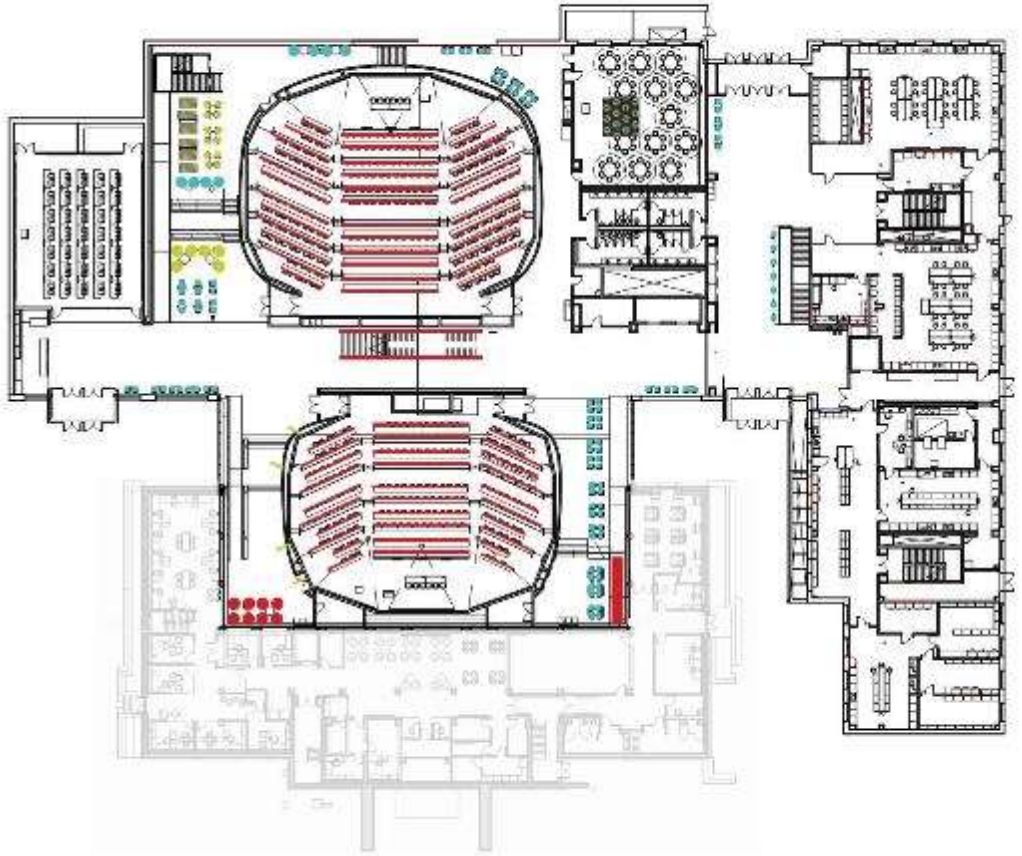
Sadie Dempsey, Erika Laux, Yoel Alemayehu, Gina Fernandes, Michael Montoya, Valerie Sherry, Benjamin Snellings, Cyrus Hashemi, Noga Raviv, Oliver Owens, Tareq Zietoon, Sandy Wan, Betsy Nolen, Lubna Chaudhry - Compiled by Harold Webb

University of Maryland College Park
The Edward. St. John Learning and Teaching Center

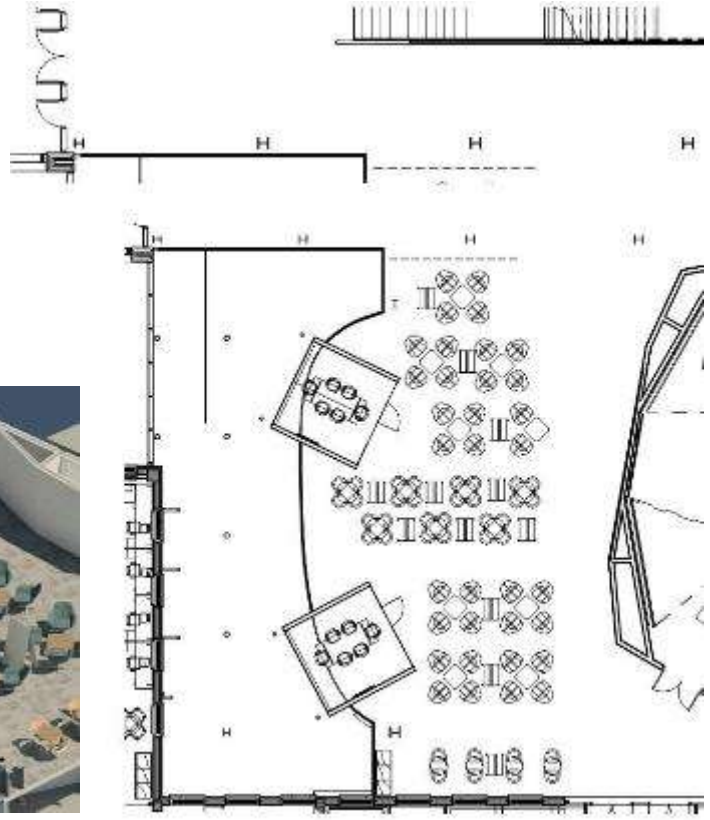
Informal Learning
Environments

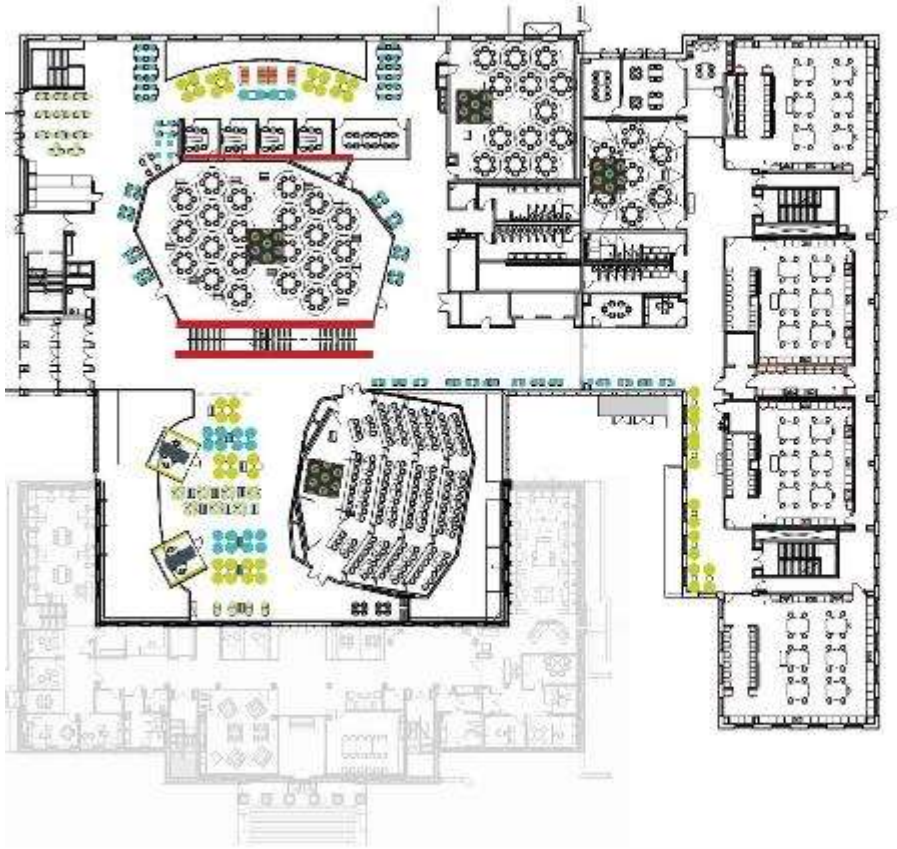






University of Maryland College Park
The Edward. St. John Learning and Teaching Center





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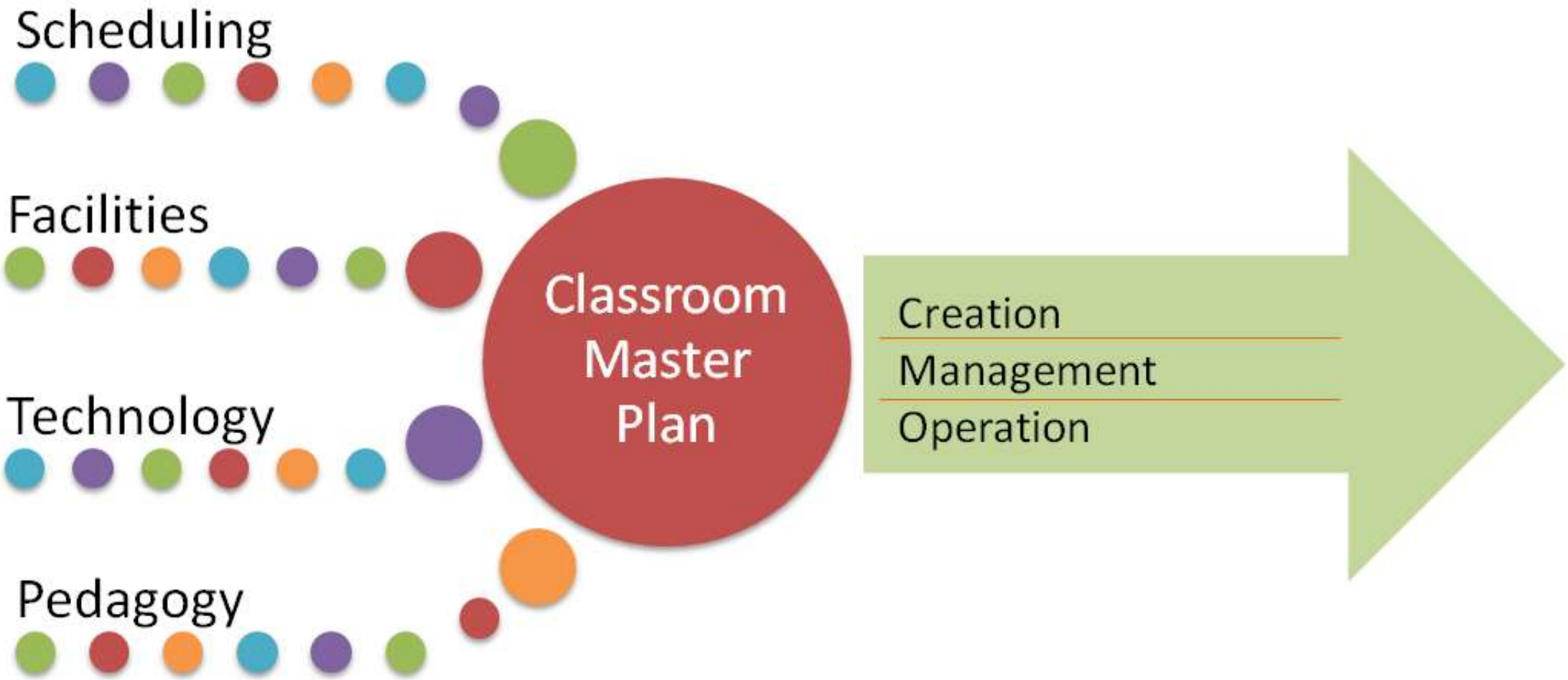
The Edward. St. John Learning and Teaching Center



TERP Classroom Prototypes

Incremental Transformations

TERP Eye2Eye Classroom - Pilot
School of Public Health

TERP Media Share Classroom - Pilot
Computer Space Sciences

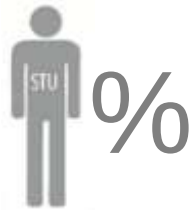
Classroom Prototypes

Incremental Transformations

UMD Crime Lab w/Steelcase node chairs

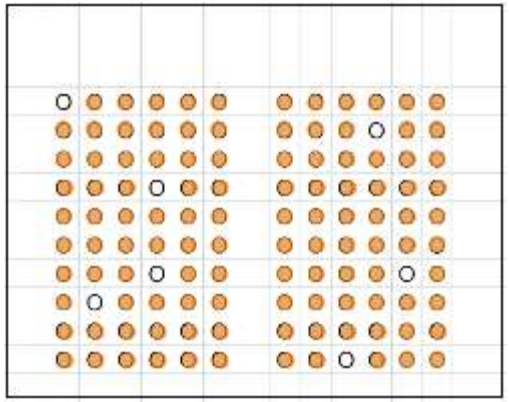
Utilization Study

CLASSROOM (110) UTILIZATION



STU

SEAT FILL
OCCUPIED SEATS / AVAILABLE SEATS
> 67%



X

TIME

WEEKLY ROOM HOURS
TIME SCHEDULED DURING WEEK
> 30 HOURS/WEEK

8-5	M	T	W	H	F
8:00					
9:00					
10:00					
11:00					
12:00					
1:00					
2:00					
3:00					
4:00					
5:00					

=

STU %

TIME
(1 WEEK)

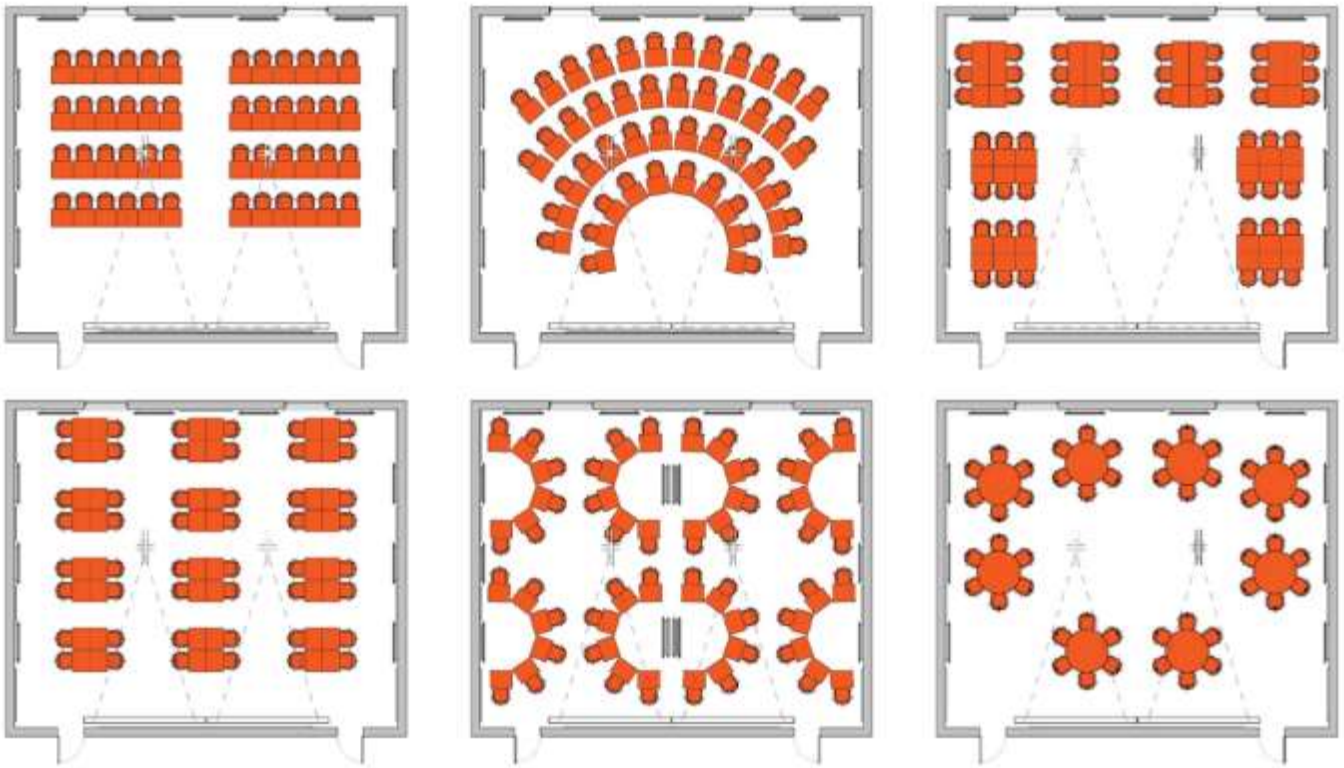
20.1 WEEKLY CONTACT HOURS
(STUDENT + FACULTY)

WHAT ABOUT SPACE?
OTHER MODES OF LEARNING?
(FACULTY + FACULTY)
(STUDENT + STUDENT)

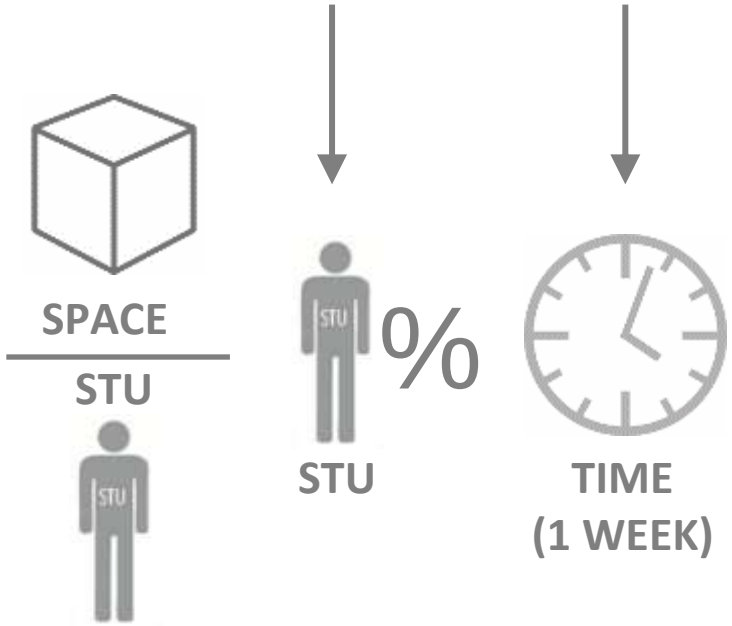
Utilization Study

CLASSROOM (110) UTILIZATION
MORE SF/STU ALLOWS FOR FLEXIBILITY OF USE

1600 NASF / 48 STU = 33.3 SF/STU



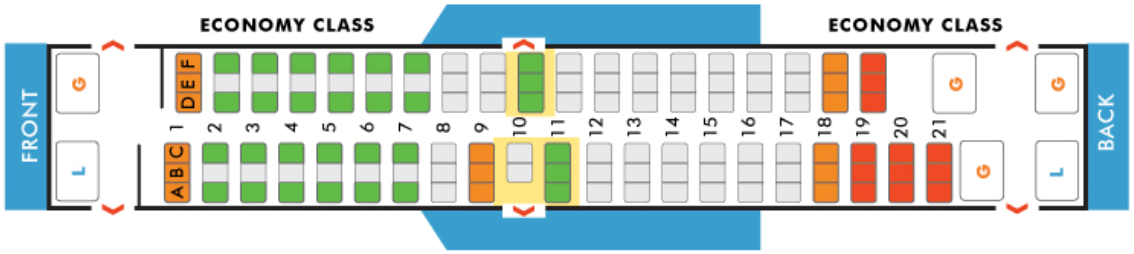
WITH MORE UTILIZATION DIVERSITY =
INCREASED **SEAT FILL** & **HOURS SCHEDULED**

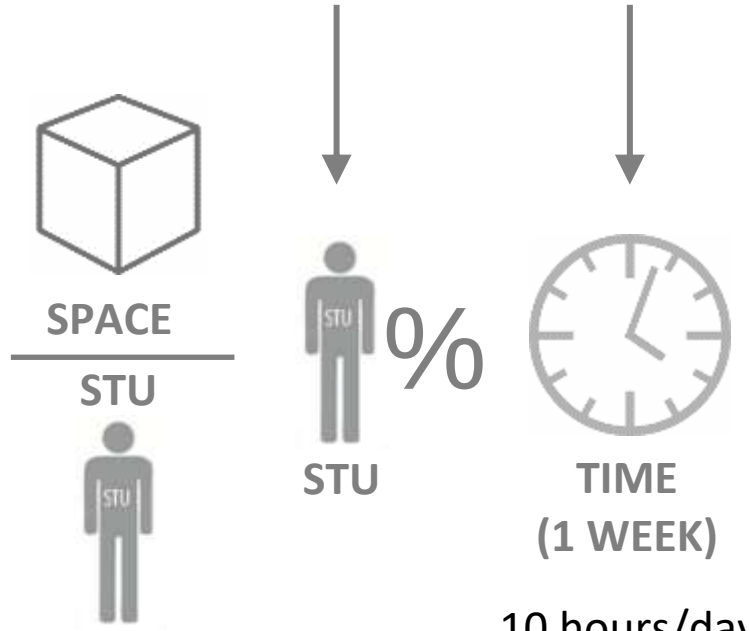


18 SF/STU	x	> 67%	x	30 HOURS = 362
18 SF/STU	x	> **80**%	x	30 HOURS = 432
18 SF/STU	x	> **80**%	x	**36** HOURS = 518
33 SF/STU	x	> 67%	x	**36** HOURS = 796
33 SF/STU	x	> **80**%	x	**36** HOURS = 950

Utilization Study

Boeing 737 Aircraft operated by Southwest





10 hours/day
7 days/week

$$\frac{1{,}120\ \text{SF}}{139\ \text{passengers}} = 8\ \text{SF/STU*} \times 95\% \times 70\ \text{hours} = 536$$

*includes cockpit, galley, etc.

Oregon State University
Learning Innovation Center (LInC)
Bora Architects

University of Maryland College Park
The Edward. St. John Learning and Teaching Center
Ayers Saint Gross

Final remarks

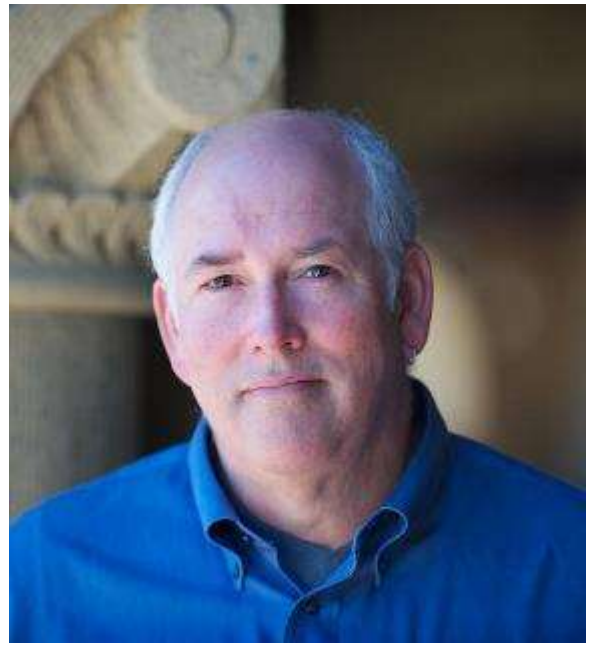
Jeanne L. Narum, Principal – Learning Spaces Collaboratory

Questions and Conversation









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Fall LSC Webinars

Learning Spaces Collaboratory

Join the conversation – send us your ideas about questions to ask in shaping learning spaces

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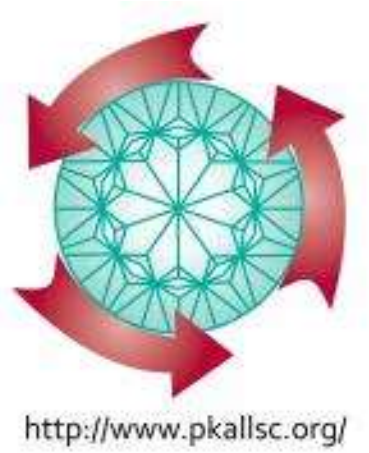

- *A Campus-wide "Space Matters" Culture*
  October 5, 2016

- *Spaces for Dissolving Boundaries between Communities*
  November 1, 2015

- *Transformative Renovations and New Connections*
  December 1, 2015