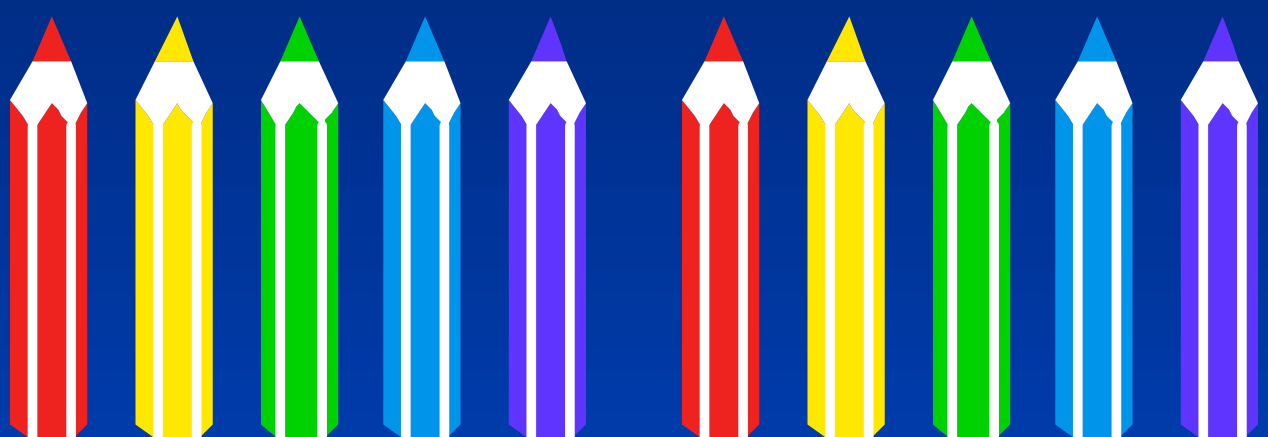
CHANGING THE EQUATION
Planning for Course Redesign

- How to Organize a Math Emporium
- How to Modularize
- How to Engage Students
- Break-out Sessions



HOW TO ORGANIZE A MATH EMPORIUM

- Phoebe Rouse
  Louisiana State University
- Betty Frost
  Jackson State CC
- Karen Wyrick
  Cleveland State CC

PHOEBE ROUSE
LSU
Flexible Model

- Redesigned College Algebra, Trig, Precalc
- Has been doing this for 6+ years
- Impacts about 5,000 students each year
- Several large labs
- Students required to spend 3 hours in lab + 1 hour in focus group per week (CA & Trig); 5 hours + 2 hours (Precalc)

BETTY FROST
JACKSON STATE CC
Fixed Model

- Redesigned 3 developmental courses
- Has been doing this for 2 years
- Impacts about 2,200 students each year
- One lab with 76 pcs
- Instructors meet with students for 3 scheduled hours in the lab

KAREN WYRICK
CLEVELAND STATE CC
Fixed/Flexible Model

- Redesigned 3 developmental courses and 6 college-level courses
- Has been doing this for 2 years
- Impacts about 2,000+ students each year
- One lab with 65 pcs and 4 pc classrooms
- Instructors meet with students for 1 hour in computer classrooms
- Students spend 2 hours outside of class working with software, including at least 1 hour in the lab


THE FABULOUS FIVE OF FIZZICS

- Is there a formula that tells us how many hours/ week do we need to have the lab available?
- How many machines per student do we need?
- How many tutors per student do we need?
- How do we track student participation in the lab?
- How do we manage student flow; how can we avoid lab overload before important deadlines?
- How do we prevent students from surfing the web during required lab time?
- What redesigned teaching load is equivalent to a traditional three-credit-hour course?

FAQs

- Is there a formula that tells us how many hours/ week do we need to have the lab available?
- How many machines per student do we need?
- How many tutors per student do we need?
- How do we track student participation in the lab?
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HOW TO ORGANIZE A MATH EMPORIUM

- Students' use of learning resources: inside and outside of the lab
- Lab management issues: testing, software, technology, instructor presence
- Training: faculty, adjuncts, lab tutors
- Philosophical/pedagogical issues

NCAT 'MUSTS"

- Lab/computer classroom
- Students working with software receiving on-demand help
- Extremely limited/no lecture
- Properly trained personnel

YOUR DECISION

- Fixed/flexible/blend lab organization
- Big lab, small lab, lab vs. computer classrooms
- Personnel mix

STUDENT USE OF LEARNING RESOURCES

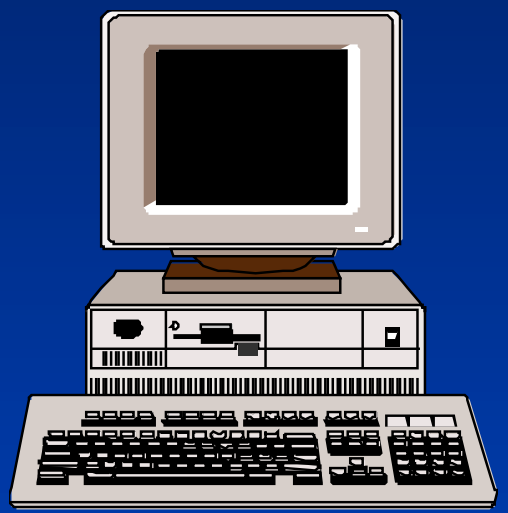
- How many hours should students be required to spend in lab each week?
- Should all students be required to spend the same amount of time in lab?
- Should students be required to do all of their work in the lab?
- How do we know students are doing their own work outside of lab?

LAB MANAGEMENT
Critical Implementation Issue #3

- How do we handle testing?
- Attendance tracking, textbooks, access codes
- What do we do when computers go down?
- Does the instructor of record need to be in the lab at all times?

TRAINING
Critical Implementation Issue #2

- How much and what kind of training do faculty need? adjuncts? tutors?
- What qualifications do tutors need?



PHILOSOPHICAL/ PEDAGOGICAL ISSUES

- Do students need any lecture?
- What about collaborative learning?
- How do we ensure that students understand the concepts?
- Other skills: pencil-and-paper; reading, writing, and life skills; math communication

HOW TO MODULARIZE

- John Squires
  Chattanooga State CC
- Betty Frost
  Jackson State CC
- Karen Wyrick
  Cleveland State CC

JOHN SQUIRES
CHATTANOOGA STATE CC
Fixed/Flexible Model

- Redesigning 2 developmental courses and 6 college-level courses
- In the midst of the redesign
- Impacts about 8,000 students each year
- One lab with 200 pcs and 7 pc classrooms
- Instructors meet with students for 1 hour in computer classrooms; students spend 2 hours outside of class working with software, including at least 1 hour in the lab

HOW TO MODULARIZE

- The "How Manys"
- Groups vs. individualization
- Administrative issues
  - Registration
  - Tracking
  - Financial aid
  - Tuition
  - Transcript and transfer

NCAT 'MUSTS"

- Modularize the student experience (not just the content)
- Let students keep going (not wait until beginning of next term if they finish one course)
- Let students early exit
- Deal with groups vs. individualization

YOUR DECISION

- The "how manys"
- Administrative issues

	Chatt State	CSCC	JSCC
How many modules?	10/course	10-12/course	12 (3 courses)
How many complete each week?	1	1	
What level of mastery?			
Homework	90%	70%	80%
Quizzes (Practice)	80%		65%
Module Tests (Proctored)	75%	70%	75%

	Chatt State	CSCC	JSCC
How many quiz attempts?	6	NA	unlimited
How many test attempts?	3	10	3
How many exam attempts?	3	10	NA
	LSU	Bama	Idaho
How many quiz attempts?	10	2	10
How many test attempts?	1	1	3
How many exam attempts?	1	1	1

COURSE POINTS BREAKDOWN

	Chatt SCC	CSCC	JSCC	LSU	Bama	Idaho
Participation	5%	10%	5%	10%	7.2%	6%
Homework	20%	30%	15%	10%	6.8%	11%
Notebooks			10%			6%
Quizzes (Practice)	15%			10%	16%	11%
Module Tests (Proctored)	45%	50%	70%	45%	40%	48%
Mid-term		5%				
Final exam	15%	5%		25%	30%	18%

GROUPS VS. INDIVIDUALIZATION

- How do you place students in the module sequence?
- How do you resolve the contradiction between letting students move at their own pace vs. an expected pace?
- What do you do if students fall behind the expected pace?
- What do you do in the weekly group meeting when students are at different places?

ADMINISTRATIVE ISSUES

- How do we register students?
- How do we track students?
- How do we meet financial aid requirements?
- How do we charge tuition when students move at different rates?
- How do we record modules on transcripts and handle transfer?

HOW TO ENGAGE STUDENTS

- Jamie Glass
  University of Alabama
- Kirk Trigsted
  University of Idaho
- John Squires
  Chattanooga State CC

JAMIE GLASS
UNIVERSITY OF ALABAMA
Flexible Model

- Redesigned Intermediate Algebra and Pre-calculus Algebra
- Has been doing this for 10+ years
- Impacts about 5,800 students each year
- One lab with 240 pcs
- Students required to spend 3 hours in lab + 1 hour focus group meeting per week

KIRK TRIGSTED
UNIVERSITY OF IDAHO
Flexible Model

- Redesigned Intermediate Algebra and College Algebra
- Has been doing this for 9 years
- Impacts about 2,500 students each year
- One lab with 94 pcs
- Students required to spend 2.5 hours in the lab + 1 hour in focus group per week

HOW TO ENGAGE STUDENTS

- How do we motivate students to do the work ?
- How should we intervene if students are not doing the work?
- Special groups: techno-phobes; non-traditional students; first-generation, low-income students lacking computer skills
- What if they don't like it?

MS EXAMPLE
Traditional: 35% received A-C grades.
Redesign: 49% received A-C grades.
Of those who complete the assignments, 82% received A-C grades.

NCAT 'MUSTS"

- Freshmen don't do optional – must require and give points
- Not enough to track – must actively intervene
- If students lack computer skills, you must provide training and support
- Need to be prepared to deal with those who "want my lecture", complain about being different from my friends, etc.

YOUR DECISION

- Specifics of how to intervene
- Specifics of how to train and orient

HOW DO WE MOTIVATE STUDENTS TO DO THE WORK ?

- Beyond requiring it and giving points . . .
- What kinds of organizing tools and other supports can we use?

INTERVENING IF STUDENTS ARE NOT DOING THE WORK

- Tracking student progress
- Going to the lab and actually doing work
- Going to the weekly class meeting
- Completing homework
- What do we do if students do not start working at the beginning of the term and fall behind?
- When and how do faculty communicate with students about their progress?

SPECIAL POPULATIONS/ATTITUDES
Critical Implementation Issue #1

- Techno-phobes
- Non-traditional students
- First-generation college students
- Low-income students
- Students lacking computer skills
- What if they don't like it?