

Developmental Math Course Redesign
at BALTIMORE CITY COMMUNITY COLLEGE
Developmental Math Modular Program:
Accelerating Student Learning!



Maryland Association of Community Colleges
2nd Annual Summit on Completion
December 9, 2011

Baltimore City Community College Baltimore, Maryland

Developmental Math Current Statistics

Annual Enrollment: 4000
of Sections: 160
Section Size: 25
Math Faculty: 18 full-time
Adjunct Faculty: 36 part-time

Course Redesign Goals:

- ***Strengthen Pedagogy***
- ***Vary Course Delivery Options***
- ***Increase Student Learning***
- ***Improve Passing Rates & Retention in Developmental Math Courses***
- ***Prepare students for College Level Math Courses***



MATH Redesign – The Modular Approach?

- The math faculty at Baltimore City Community College (BCCC) wholeheartedly agree that “students learn math by doing math, not by listening to someone talk about doing math or watching someone do math.”
- Currently, instructional methodologies used in developmental math consist of placing students in a structured environment where they are required to work at the same pace and individual learning styles are difficult to address.
- BCCC’s redesign of developmental math will utilize the modularization concept. Students who demonstrate mastery of a module will advance to the next module, allowing students to work at their own pace and use the course materials that best match their individual learning styles the most. Students who complete the modules required of a course before the end of the semester will have the option of beginning the next level of developmental math.

MATH Redesign – The Modular Approach?

Pilot Phase:

- During the pilot, which will run over the Fall 2011 and Spring 2012 Semesters, parallel sections of traditional and modular developmental math courses will be used to assess student learning. Data obtained from the pilot phase will be used to compare student success rates, retention rates and success in subsequent math courses between the traditional and the redesigned settings. Indirect measures of student success will be obtained through surveys regarding perceptions of student learning in the new environment.

MATH Redesign – The Modular Approach?

The constraints of full implementation of the modular approach in our developmental course redesign are outlined below:

- Preparing students and the college campus for changes in the developmental mathematics course instruction.
- Training instructors, tutors, student advisors (staff and faculty), recruitment officers, administrators, and other essential personal on the new model
- Determining how to assign grades and manage module success in the current structure of Baltimore City Community College
- Ensure an adequate technological infrastructure to support the redesign as planned.
- **Achieve initial and ongoing faculty consensus about the redesign!**

MATH Redesign – The Modular Approach?

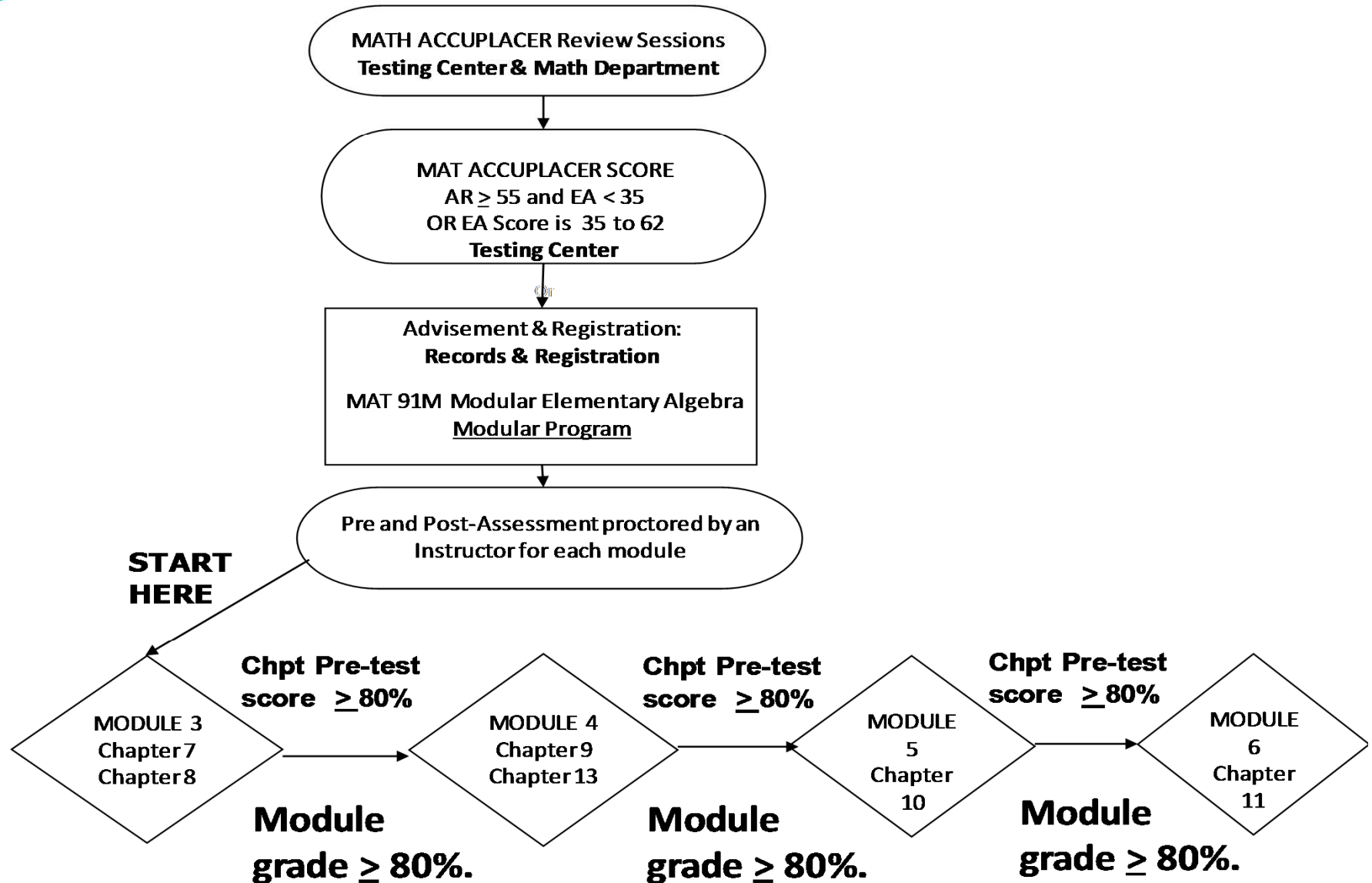
Results:

- No results at this time. We just started our redesign pilot this Fall 2011 Semester. We are piloting 5 sections of Elementary Algebra (MAT 91M) classes and 5 sections of Intermediate Algebra (MAT 92M) classes using the modular approach. For Spring 2012, the College plans to increase the number of developmental math courses in the re-design based on student interest and enrollment.

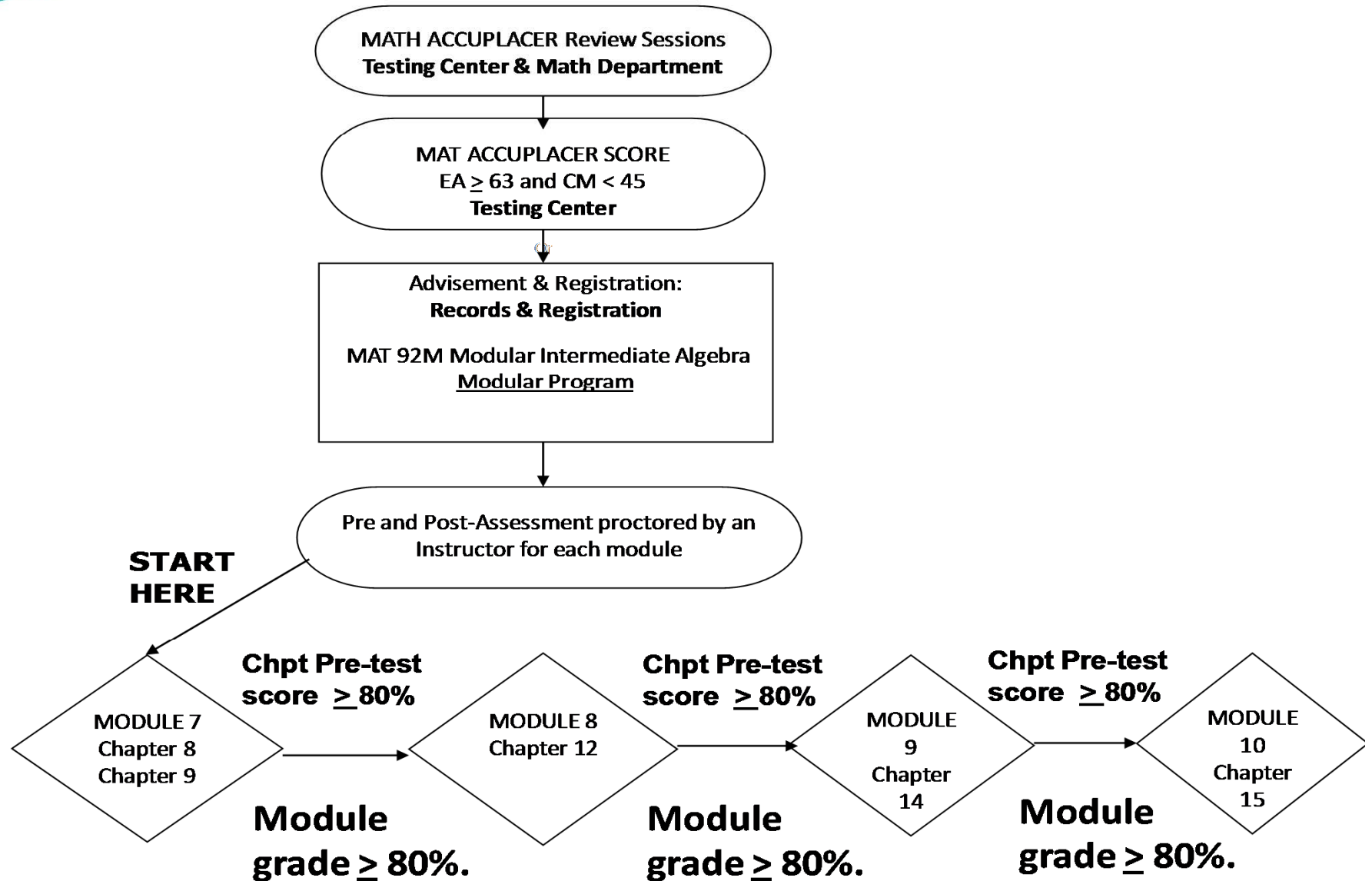
Fall 2011 Pilot Developmental Math Modular Program

- Self-Paced Modular Courses for Elementary Algebra and Intermediate Algebra that assess math skills and targets instruction to deficiencies, allowing students to progress through courses at a faster rate. Also addresses individual learning styles.
- A program administrator: Prof. Ennels
- Three full-time instructors: Prof. Ennels, Prof. Sumner, Prof. Chapple.
- Three part-time teaching assistants: Dr. Green, Dr. Ghurtskaia, and Mr. Reznichenko
- 119 Enrolled Students (60 for MAT 91M and 59 for MAT 92M)
- 10 Sections of Modular Courses (5 –MAT 91M and 5 MAT 92M)
 - Includes an 8 week MAT 91M/92M (Accel I) and 8 week MAT 92M (Accel II). Offering an 8 week MAT 107 or 128 (Accel II).
- Modular courses take place in the morning and afternoon Monday through Friday (no evening sessions this semester)
- The Modular Program uses two computer labs where instruction takes place (LSB 245 and 246)
- Modular Program offers flexible scheduling which helps with retention

MAT 91M Modular Elementary Algebra



MAT 92M Modular Intermediate Algebra



Modular Learning Center Schedule

	MON	TUES	WED	THURS	FRI	SATURDAY	
9:00-9:30am	Chapple (LSB 245) Ennels (LSB 246)	Sumner (LSB 246)	Chapple (LSB 245) Ennels (LSB 246)	Sumner (LSB 246)	Ennels (LSB 246)	CLOSED	
9:30-10:00am							
10:00-10:30am	Chapple (LSB 245) Ennels (LSB 246)	Sumner (LSB 246)	Chapple (LSB 245) Ennels (LSB 246)	Sumner (LSB 246)	Ennels (LSB 246)		
10:30-11:00am							
11:00-11:30am	Check-up Lecture Session (LSB 245) starts 11:30AM	Sumner (LSB 246)	Check-up Lecture Session (LSB 246) starts 11:30AM	Sumner (LSB 246)	Ennels (LSB 246)		
11:30-12:00pm							
12:00-12:30pm	Check-up Lecture Session (LSB 245) ends 1:00PM	Check-up Lecture Session (LSB 250) 11:30AM-12:30PM	Check-up Lecture Session (LSB 246) ends 1:00PM	Check-up Lecture Session (LSB 250) 11:30AM-12:30PM	Check-up Lecture Session (LSB 245) 11:30-12:30PM		CLOSED
12:30-1:00pm							
1:00-1:30pm	Ennels (LSB 245)	Ennels (LSB 246)	Ennels (LSB 245)	Ennels (LSB 246)	Stan (LSB 250) until 3:00pm		
1:30-2:00pm							
2:00-2:30pm	Ennels (LSB 245)	Ennels (LSB 246) until 2:35PM	Ennels (LSB 245)	Ennels (LSB 246) until 2:35PM			
2:30-3:00pm							
3:00-3:30pm	Ennels (LSB 245) until 3:35pm	Check-up Lecture Session (LSB 246) 2:35PM-3:35PM	Ennels (LSB 245) until 3:35pm	Check-up Lecture Session (LSB 246) 2:35PM-3:35PM			
3:30-4:00pm							
4:00-4:30pm							
4:30-5:00pm							
5:00-5:30pm							
5:30-6:00pm							
Instructor: Frederick Chapple Office: LSB 208 Phone: 410-462-7739 Email: fchapple@bccc.edu			Instructor: Petal Sumner Office: LSB 321 Phone: 410-462-8041 Email: psumner@bccc.edu				

FALL 2011

Sample Modular Course Checklist Given to All Students

Module 3 – Chapter 7 and 8 (Complete by 9/26)	DATE COMPLETED			
	MyWorkBook	Quiz	Homework	Test
Chapter 7 Pre-test (Skip Chapter 7 if score is $\geq 80\%$)				
7.2 The Real Numbers				
7.3 Adding Real Numbers				
7.4 Subtracting Real Numbers				
7.5 Multiplying Real Numbers				
7.6 Dividing Real Numbers				
7.1 Introduction to Algebra				
7.7 Properties of Real Numbers				
7.8 Simplifying Expressions; Order of Operations				
Chapter 7 Post-Test				
Chapter 8 Pre-test (Skip Chapter 8 if score is $\geq 80\%$)				
8.1 Solving Equations; The Addition Principle				
8.2 Solving Equation: The Multiplication Principle				
8.3 Using the Principles Together				
8.4 Formulas				
8.6 Application and Problem Solving				
Chapter 8 Post-Test				

PEDAGOGY for MODULAR PROGRAM (INDIVIDUALIZED)

Less Lecture - More interaction with Instructor and Online Resources

- Interactive guided examples in the student MyWorkBook
- Video tutorial linked to MyWorkBook and online homework
- Individualized Study Plan linked to online quizzes and tests

Master Learning:

- 80% on all quizzes
- 80% on all homework (customized based on quiz results)
- 80% on all post-tests

Modular Learning Center (Open Mon – Fri: 9am - 3pm)

- Individual assistance with MyWorkBook and online assignments
- Check-up Lecture Sessions
- Study skills
- Test taking strategies
- Help with time management and organization.
- Student Learning Communities
- Review for exams

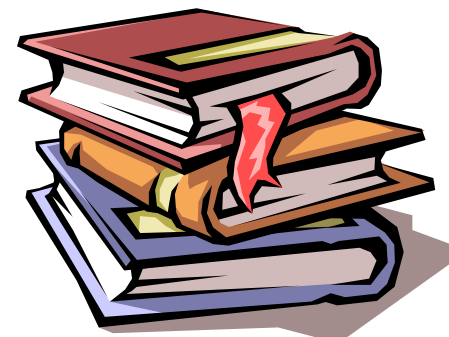
Grading Policy for Developmental Math Courses

REDESIGN COURSES	TRADITIONAL COURSES
Promise Academy: FFS Math – Life Skills 3 billable hours - Scholarship	Basic Math (MAT 80) 3 billable hours – Financial Aid
Modular Elementary Algebra (MAT 91M - 3,4,5,6) 4 billable hours	Elementary Algebra (MAT 91) 4 billable hours
Modular Intermediate Algebra (MAT 92M -7,8,9,10) 4 billable hours	Intermediate Algebra (MAT 92) 4 billable hours

To satisfy a module, the overall grade must be at least 80%.
 To pass the course, the overall grade must be at least 70%.

Grade Policy

Online Homework	<u>10%</u>
Online Quiz	<u>20%</u>
Chapter Tests	<u>50%</u>
Final Exam	<u>20%</u>



BENEFITS OF REDESIGN FOR STUDENTS

- ✓ All three math level in one textbook and access code
- ✓ MyWorkBook and textbook available online through MyLabsPlus
- ✓ Faster pace through developmental math requirements
- ✓ Students can adjust schedule to suit life changes, instead of withdrawing from the course

BENEFITS OF REDESIGN FOR INSTITUTION

- ✓ BCCC reduces cost per student
- ✓ BCCC improves retention of students
- ✓ BCCC increases college enrollment numbers by enrolling students more quickly in credit-bearing courses



Presenter Contact Info

Professor Edward Ennels

Assistant Professor of Mathematics

Coordinator for Developmental Mathematics

Baltimore City Community College

2901 Liberty Heights Avenue

Baltimore, MD 21215

Office: 410-462-7792

Email: eennels@bccc.edu