**Course Approval Form**

**Action Requested:**
- [X] Create new course
- [ ] Inactivate existing course
- [ ] Modify existing course
  - Title
  - Prereq/coreq
  - Credits
  - Schedule Type
- [ ] Repeat Status
- [ ] Grade Type

**Course Level:**
- [X] Undergraduate
- [ ] Graduate

**College/School:** INTO Mason
**Department:** Academic Division
**Submitted by:** Karyn Mallett/Ellen O'Brien
**Ext:** 3-5014
**Email:** kmallet1@gmu.edu
**Effective Term:**
- [X] Fall
- [ ] Spring
- [ ] Summer

**Subject Code:** MATH
**Number:** 044
**Effective Term:**
- [X] Fall
- [ ] Spring
- [ ] Summer

**Units:**
- [X] Fixed
- [ ] Variable

**Grade Mode:**
- [ ] Regular (A, B, C, etc.)
- [X] Satisfactory/No Credit
- [ ] Special (A, B, C, etc. + IP)
- [X] Special (English Language)

**Schedule Type:**
- [ ] Lecture (LEC)
- [ ] Lab (LAB)
- [ ] Recitation (RCT)
- [ ] Seminar (SEM)
- [X] Studio (STU)

**Restrictions Enforced by System:**
- Major, College, Degree, Program, etc. Include Code.

**Catalog Copy for NEW Courses Only**
(Consult University Catalog for models)

**Description:**
Prepares INTO Mason students for Math 108, Introductory Calculus with Business Applications, which is required by the Pathways leading to Business and Information Technology majors. The course will provide an early exposure to college level mathematics, will prepare students to engage with the language – vocabulary and written/oral comprehension – of mathematics, and will facilitate the transition to a conventional mathematics classroom environment.

**Notes:**
The successful completion of this course will serve as a prerequisite for Math 108 in lieu of the Math Placement Test.

**Indicate number of contact hours:**
- Hours of Lecture or Seminar per week: [2]
- Hours of Lab or Studio:

**Approval Signatures**

**For Graduate Courses Only**

**Approval Signatures**

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Unit Approval Name</th>
<th>Unit Approver’s Signature</th>
<th>Date</th>
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</thead>
</table>

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

For Registrar Office’s Use Only: Banner ____________________________ Catalog ____________________________

revised 11/8/11
FOR ALL COURSES (required)
Course Number and Title:
Math 044 Business Math Preparation

Date of Departmental Approval: 9/17/15

FOR NEW COURSES (required if creating a new course)
Reason for the New Course:
INTO Mason students are often not permitted by their sponsors to take courses in an online format. Currently the only program to prepare students for Math 108 is the non-credit course, Math 008, offered exclusively in an online format. This new course also provides an opportunity to give students whose first language is not English, some early exposure to the language and symbols of Mathematics in a non-credit and sheltered setting.

- Relationship to Existing Programs:
The existing programs, Academic English and INTO Mason Pathways, do not offer courses for this purpose. These will be the first.

- Relationship to Existing Courses:
The content level of Math 044 will duplicate that of Math 008. Unlike Math 008, Math 044 will include language support and some focus on skills necessary for success in traditional university level Mathematics courses.

- Semester of Initial Offering:
Spring 2016

- Proposed Instructors:
Michael Coleson

- Insert Tentative Syllabus Below – See attached syllabus
MATH 044: Business Math Preparation

Overview

Prepares Academic English students for Math 108 Introductory Calculus with Business Applications, which is required by the Pathways leading to Business and Information Technology majors. The course will provide an early exposure to college level mathematics, will prepare students to engage with the language – vocabulary and written/oral comprehension – of mathematics, and will facilitate the transition to a conventional mathematics classroom environment.

The successful completion of this course will serve as a prerequisite for Math 108 in lieu of the Math Placement Test.

Course Materials

• Introductory Algebra: Concepts with Applications, by Charles P. McKeague, XYZ Textbooks, 2012. The textbook is available in hardcopy or etext. ISBN# 978-1-936368-08-2
• XYZHomework.com: an online homework system that accompanies the textbook

Content

The course will cover Beginning Algebra skills that form a vital foundation for the study of Calculus. The Learning Modules for the course are listed below:

1. Real Numbers and Algebraic Expressions
2. Linear Equations and Inequalities
3. Graphing Linear Equations and Inequalities
4. Exponents and Polynomials
5. Factoring Polynomials
6. Rational Expressions
7. Systems of Linear Equations
8. Radical Expressions and Equations
9. Quadratic Equations and Functions

Grading

In addition to three tests and a final exam, there will be graded quizzes and/or in-class group assignments throughout the semester. Online homework will be assigned for practice.
COURSE SEQUENCE

Module 1
1.1 Real Numbers
1.2 Addition and Subtraction of Real Numbers
1.3 Multiplication of Real Numbers
1.4 Division of Real Numbers
1.5 Properties of Real Numbers
1.6 Simplifying Expressions

Module 2
2.1 Addition Property of Equality
2.2 Multiplication Property of Equality
2.3 Solving Linear Equations
2.4 Formulas
2.5 Applications
2.7 Linear Inequalities in One Variables

Module 3
3.1 The Rectangular Coordinate System
3.2 Solutions and Graphs of Linear Equations
3.3 Graphing Linear Equations Using Intercepts
3.4 Graphing Linear Equations Using Slope
3.5 Finding the Equation of a Line
3.6 Graphing Linear Inequalities

Module 4
4.1 Multiplication with Exponents
4.2 Division with Exponents
4.3 Operations with Monomials
4.4 Addition and Subtraction of Polynomials
4.5 Multiplication of Polynomials
4.6 Special Products
4.7 Dividing a Polynomial by a Monomial

Module 5
5.1 Greatest Common Factor
5.2 Factoring Trinomials of the form $x^2+bx+c$
5.3 Factoring Trinomials of the form $ax^2+bx+c$
5.4 The Difference of Two Squares and Perfect Squares
5.6 Factoring: A General Review
5.7 Solving Quadratic Equations by Factoring

Module 6
6.1 Simplifying Rational Expressions
6.2 Multiplication and Division of Rational Expressions
6.3 Addition and Subtraction of Rational Expressions
6.4 Equations Involving Rational Expressions
6.6 Complex Fractions
6.7 Proportions
Module 7
7.1 Solving Linear Systems by Graphing
7.2 The Substitution Method
7.3 The Elimination Method
7.4 Applications of Systems of Equations

Module 8
8.1 Radical Expressions
8.2 Simplifying Radicals
8.3 Addition and Subtraction of Radicals
8.4 Multiplication and Division of Rational Expressions
8.5 Radical Equations and Graphs

Module 9
9.1 Factoring and the Square Root Property
9.2 Completing the Square
9.3 The Quadratic Formula
9.4 Graphing Quadratic Equations
9.5 Introduction to Functions
9.6 Function Notation