Course Inventory Change Request

Date Submitted: 12/09/14 7:46 pm

Viewing: **MATH 1123 : Pre-Calculus algebra**

Last edit: 12/10/14 10:31 am

**Changes proposed by: TAMTINY**

- **Submitter:**
  - **User ID:** TAMTINY
  - **Phone:** 6572

- **Change Type**
  - **Other Change Type**
    - Pre Requisite
  - **pre-req only**

- **Proposing College/School:**
  - Coll of Sciences & Mathematics

- **Department:**
  - Mathematics & Statistics

- **Effective Term:**
  - **Fall 2015**

- **Subject Code:**
  - Mathematics (MATH)

- **Course Code:**
  - 1123

- **Course Number:**
  - 1123

**Justification for change:**

The proposed pre-requisite change is based on the recommendation by the Math Placement Committee of the Department of Mathematics and Statistics. The committee did a statistical analysis in which students with the proposed prerequisite will have 75% chance of success.

This is a core level course used under many majors. Offering it online would allow for flexibility and easier accessibility to the students.

- **Course Title:**
  - Pre-Calculus algebra

- **Abbreviated Title:**
  - Pre-Calculus algebra

- **Course Credit:**
  - **Schedule Type**
    - **Contact/Group Hours**
    - **Weekly or Per Term?**
    - **Credit Hours**
    - **Anticipated Enrollment**
      - **DG1**
        - 3

**In Workflow**

1. MATH Editor
2. MATH Chair
3. SM Undergraduate Curriculum Committee Chair
4. SM Editor
5. SM Associate Dean
6. DistanceEducation1
7. DistanceEducation2
8. Coordinator Curriculum Management
9. University Curriculum Committee Chair
10. Coordinator Curriculum Management

**Approval Path**

1. 12/10/14 10:19 am
   - HOLLIDG: Approved for MATH Editor
2. 12/10/14 10:31 am
   - TAMTINY: Approved for MATH Chair
3. 12/16/14 10:51 am
   - CAMMAVI: Approved for SM Undergraduate Curriculum Committee Chair
4. 12/16/14 11:37 am
   - YARBREL: Approved for SM Editor
5. 12/16/14 11:41 am
   - CAMMAVI: Approved for SM Associate Dean
6. 12/16/14 6:33 pm
   - SZC0024: Approved for DistanceEducation1
7. 12/17/14 7:31 am
   - ALIASIM: Approved for DistanceEducation2
<table>
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<th>Schedule Type</th>
<th>Contact/Group Hours</th>
<th>Weekly or Per Term?</th>
<th>Credit Hours</th>
<th>Anticipated Enrollment</th>
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Can the course be repeated? No

Total Credit Hours: 3

Grading Type: Standard Grades

Prerequisites: Pr. Math ACT 22 or Math SAT 520 or above, or MATH 1000/1003. Students may receive credit for only one of MATH 1120/1123.

Prerequisite Courses:

Corequisites:

Restrictions:

Admin Restrictions:

Course Description: An online version of MATH 1120. Students may receive credit for only one of MATH 1120/1123. Credit will not be given for both MATH 1123 and MATH 1120. Additional Prerequisites: High school geometry and second year high school algebra.

May Count Either: MATH 1120 - Pre-Calculus Algebra

Affected Program(s):

Overlapping or Duplication of Other Units' Offerings:

Resources: may need to hire instructor with online teaching experience.
1. The student will show an understanding of functions including graphs, combining, inverses, and domains.

2. The student will be able to solve both linear and nonlinear inequalities.

3. The student will show an understanding of polynomial functions including graphing, dividing, and factoring.

4. The student will show an understanding of rational functions including horizontal and vertical asymptotes and graphing.

5. The student will be able to work with complex numbers in standard form.

6. The student will use both exponential and logarithmic functions to model applications.

7. The student will be able to work with systems of linear and nonlinear equations and inequalities.

8. The student will demonstrate an understanding of sequences and series including the Binomial Theorem.

Is this course considered University Core? Yes

Which Student Learning Outcomes are achieved?

SL04 Mathematical Methods

How would outcomes be assessed?

Questions assessing SLO4 are incorporated in the final exam to measure the SLO4. Data will be collected and analyzed.

Course Content Outline

Modules are due on each Friday. Unit exams are due the Friday following the end of the Unit modules. The final exam will be due the Friday of the 15th week.

Week 1
Section 1.7: Inequalities

Week 2
Section 1.10: Lines
Section 2.1: Functions
Section 2.2: Graphing Functions

Week 3
Section 2.3: Graphical Information
Section 2.4: Average Rate of Change
Section 2.5: Translation, Transformations, Even/Odd Functions
Week 4
Section 2.6: Combinations and Compositions of Functions
Section 2.7: Inverse Functions and One-to-One

Week 5
Section 3.1: Quadratic Functions and Optimization
Section 3.2: Graphing Polynomials

Unit 1 Test: Sections 1.7 - 2.7

Week 6
Section 3.3: Dividing Polynomials
Section 3.4: Real Zeros of Polynomials

Week 7
Section 3.5: Complex Numbers in Standard Form
Section 3.6: Complex Zeros of Polynomials

Week 8
Section 3.7: Rational Functions
Section 4.1: Exponential Functions
Section 4.2: The Number e

Week 9
Section 4.3: Logarithmic Functions
Section 4.4: Laws of Logarithms

Unit 2 Test: Sections 3.1 - 3.7

Week 10
Section 4.5: Exponential and Logarithmic Equations
Section 4.6: Exponential and Logarithmic Models

Week 11
Section 10.1: Linear Systems of 2 Variables
Section 10.2: Linear Systems of 3 or More Variables

Unit 3 Test: Sections 4.1 - 4.6

Week 12
Section 10.8: Nonlinear Systems
Section 10.9: Systems of Inequalities

Week 13
Section 12.1: Sequences and Series
Section 12.2: Arithmetic Sequence
Section 12.3: Geometric Sequence

Week 14
Section 12.6: Binomial Theorem
Final Review and Study Guide

Unit 4 Test: Sections 10.1 - 12.3

Week 15
Final Exam
The course will be set up in 4 components: modules, unit exams, conference participation, and final exam.

Modules will be accessed through Enhanced WebAssign (EWA) which is available with the text purchase. Each module will consist of practice homework, media assignments, and an exit quiz. Modules are due at the end of the week. Module quizzes will be conducted online in a virtual testing environment (timed exam, browser lock-down, IP address lock).

There will be 4 unit exams. These will be administered by a proctor approved by the department through Canvas.

Conference participation will be awarded for attending one of three online conferences per week at a time of the student's choosing. Conferences will be held through Canvas using Big Blue Button. These will be question and answer sessions in small groups.

The final will be a comprehensive multiple choice exam consisting of approximately 32 questions. It will be administered by a proctor approved by the department through Canvas.

All communication (emails, forums, etc.) will be conducted through Canvas with communication through WebAssign (emails, extension requests, forums, etc.) as secondary. Students can contact the instructor through either and using Tigermail. Grades will be posted in Canvas with a copy in WebAssign.

Grades will be awarded based on the following.

Modules (10 units) 50%
Participation 10%
Final exam 40%
Total awarded 100%

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = 0-59%

Attachments

Course reviewer comments
CAMMAVI (10/30/14 9:26 am): Rollback: equivalent SAT
WILLIF2 (12/01/14 1:42 pm): Rollback: correction