Course Inventory Change Request

Date Submitted: 12/09/14 8:20 pm

Viewing: **MATH 1153 : Precalculus: Algebra and Trigonometry**

Last edit: 12/10/14 10:34 am

Changes proposed by: TAMTINY

<table>
<thead>
<tr>
<th>Submitter:</th>
<th>User ID: TAMTINY</th>
<th>Phone: 6572</th>
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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 Number: 1153

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.

Justification for change:

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: Precalculus: Algebra and Trigonometry

Abbreviated Title: Precalc Algebra And Trig

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<tr>
<th>Course Credit:</th>
<th>Schedule Type</th>
<th>Contact/Group Hours</th>
<th>Weekly or Per</th>
<th>Credit Hours</th>
<th>Anticipated Enrollment</th>
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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 HOLLID: Approved for MATH Editor
2. 12/10/14 10:34 am TAMTINY: Approved for MATH Chair
3. 12/16/14 10:52 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 6:37 pm SZC0024: Approved for DistanceEducation1
7. 12/17/14 7:32 am ALIASIM: Approved for DistanceEducation2
**Course Description:** This is an online version of MATH 1150. Students may receive credit for only one of MATH 1150/1153. Preparatory course for the calculus sequence. Algebraic functions. Exponential and Logarithmic functions. Analytic and geometric properties of trigonometric functions.

**May Count Either:** MATH 1150 - Pre-Calculus Algebra and Trigonometry

**Course Objectives/Outcomes:**

1. The student will show an understanding of functions including graphs, combining, inverses, and domains.

2. The student will be able to work with complex numbers in standard and polar form.

3. The student will use both exponential functions and logarithmic functions to model applications.
4. The student will be able to evaluate trigonometric functions and their inverses using right triangles and the unit circle.

5. The student will solve various triangles and associated applications.

6. The student will be able to prove trigonometric identities and use these to solve trigonometric equations.

7. The student will be able to convert to, and plot in polar coordinates.

8. The student will use vectors to solve applications.

Is this course considered University Core? Yes

Which Student Learning Outcomes are achieved?

SL04 Mathematical Methods
SL05 Problem Solving

How would outcomes be assessed?

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

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
Sections 2.1-2.3: Functions and Graphs
Section 2.4: Average Rate of Change

Week 2
Section 2.5: Translations and Transformations
Section 2.6: Combining Functions

Week 3
Section 2.7: Inverse Functions and One-to-One
Sections 3.5: Complex Numbers in Standard Form

Week 4
Section 4.1: Exponential Functions
Section 4.2: The Number e
Section 4.3: Logarithmic Functions

Unit 1 Test: Sections 2.1 - 3.5

Week 5
Section 4.4: Laws of Logarithms
Section 4.5: Exponential and Logarithmic Equations
Week 6
Section 4.6: Exponential and Logarithmic Models
Section 6.1: Angles
Section 6.2: Trigonometry of Right Triangles
Section 6.3: Reference Angles

Week 7
Section 5.1: Unit Circle
Section 5.2: Trigonometric Functions
Section 5.3: Graphs of Sine and Cosine

Unit 2 Test: Sections 4.1 - 4.6

Week 8
Section 5.4: Trigonometric Graphs
Section 5.5: Graphs of Inverse Trigonometric Functions
Section 6.4: Inverse Trigonometric Functions

Week 9
Section 6.5: Law of Sines
Section 6.6: Law of Cosines

Week 10
Section 7.1: Proving Identities
Section 7.2: Sum/Difference Identities

Unit 3 Test: Sections 5.1 - 6.6

Week 11
Section 7.3: More Identities
Section 7.4: Basic Trigonometric Equations
Section 7.5: Trigonometric Equations

Week 12
Section 8.1: Polar Coordinates
Section 8.2: Graphs of Polar Equations

Unit 3 Test: Sections 7.1 - 7.5

Week 13
Section 8.3: Polar Form
Section 9.1: 2-D Vectors

Week 14
Section 9.2: Dot Product
Final Review and Study Guide

Unit 4 Test: Sections 8.1 - 9.2

Week 15
Final Exam

1. The student will show an understanding of functions including graphs, combining, inverses, and domains.

2. The student will be able to work with complex numbers in
standard and polar form.

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

4. The student will be able to evaluate trigonometric functions and their inverses using right triangles and the unit circle.

5. The student will solve various triangles and associated applications.

6. The student will be able to prove trigonometric identities and use these to solve trigonometric equations.

7. The student will be able to convert to, and plot in polar coordinates.

8. The student will use vectors to solve applications.

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%

Rubric and Grading Scale

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

Attachments

Supplemental for DE 1153 F14.pdf

Course reviewer comments

CAMMAVI (10/30/14 9:27 am): Rollback: equivalent SAT
WILLIF2 (12/01/14 1:43 pm): Rollback: correction