MATH 1113: Precalculus: Section 03  
Spring 2015 Semester (Final Draft)

Instructor: Brian Brodsky  
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Email: bbrodsky@westga.edu  
Class Meetings: MWF: 11am – 11:52am: Boyd 305 and R: 11am – 11:52 Boyd 301  
Office Hours: Tuesday 7am – 12pm and 1pm – 2pm. Thursday 7am – 8am, 9am – 11am and 1pm – 2pm.

Hours Credit: 4 hours

Prerequisites: Four years of high school mathematics including algebra and trigonometry OR MATH 1111.

Course Description: This course is designed to prepare students for calculus, physics and related technical subjects. Topics include an intensive study of algebraic and transcendental functions.

Text: Precalculus, 5e, by Robert Blitzer (Pearson/Prentice Hall)

Dominant Discourse Learning Outcomes: Students should be able to demonstrate:
1. An understanding of functions and how to graph functions
2. An understanding of operations on functions including function composition
3. An understanding of polynomial and rational graphs, including intercepts and asymptotes
4. An understanding of how to find the zeros of a polynomial and how to factor polynomials
5. An understanding of inverse functions and how to find them graphically and algebraically
6. An understanding of the properties of exponential and logarithmic equations
7. An understanding of how to solve exponential and logarithmic equations
8. An understanding of how to find the values of the trigonometric functions from right triangles and circles
9. An understanding of how to graph the trigonometric functions
10. An understanding of how to prove trigonometric identities
11. An understanding of how to use the sum, difference, double-angle and half-angle formulas for sine and cosine
12. An understanding of how to solve triangle using the law of sines and law of cosines
13. An understanding of polar coordinates and graphs
14. An understanding of how to analyze and solve applied problems

Critical and Metacognitive Learning Outcomes:
1. Learners will become empowered by taking charge of their own meaning making.
2. Learners will gain empowerment from knowledge and social relations that dignify one’s own history, language, and cultural traditions. During this process, students will be able to interrogate and selectively appropriate those aspects of the dominant culture that will provide them with the basis for defining and transforming, rather than merely serving, the wider social order (Giroux & McLaren, 1996).
3. Learners should be inspired to re-conceptualize different ways of knowing that rupture entrenched epistemologies and foster participatory spaces for the sharing and production of knowledge, and the mobilization of agency to effect changes in the world (Leistyna & Woodrum, 1996).

4. Learners will achieve academic success (both mathematical power and what is needed to pass gatekeeper tests and/or obtain access to advanced mathematical courses and related careers if desired), sociopolitical consciousness, a sense of social agency, positive cultural and social identities (Gutstein, 2007).

**Student Centered Learning Outcomes:**

1. How to “not hate math”.
2. Students want to be prepared for calculus.
3. Students want to “understand” trigonometry.
4. Students want to know how to use math in “real world” situation.

**Grade Composition:**

- 50% from in-class exams
- 10% from concept map assignments
- 05% from in-class quizzes and assignments
- 10% from projects
- 25% from final exam
- Final Grade: $0 \leq F < 60 \leq D < 70 \leq C < 80 \leq B < 90 \leq A$

**Exams:** In addition to the final exam, there will be 4 in-class exams. Please see the attached course schedule for dates of the exams. Students may be able to reschedule exams if they have informed the instructor at least one class meeting prior to the exam of their situation. Students will not be allowed to make up missed exams.

**Concept Map Assignments:** Concept map assignments will be due throughout the semester and must be submitted into their assigned dropboxes in CourseDen. Please see the course calendar for the due dates of these assignments. Past due submissions will not be accepted for credit.

**In-Class Quizzes and Assignments:** Students must attend class the day of an in-class quiz or assignment in order to receive credit. Students will not be allowed to make up missed in-class quizzes or assignments.

**Projects:** Throughout the semester, we will engage in 2 projects. The purpose of these projects will be to investigate possible ways that we can use mathematics to help us understand and make meaning in the world, or read the world around us, in order to become critical agents in the world, or write the world around us. Please see the course calendar for details and due dates for these projects.

**Topics of Projects:**

1. The minimum wage vs cost of college tuition, what is the deal?
2. Education level and average salary.
Final Exam: There will be no make-up Final Exam. Students needing accommodations for the final exam must notify the instructor at least one week prior to the scheduled exam date.

CourseDen: Course materials will be posted on CourseDen. Please check CourseDen often for updates. You may log in to CourseDen at www.westga.edu or http://webct.westga.edu. If you are having problems logging into CourseDen, please go to http://uwgonline.westga.edu/students.php or call 678-839-6248

Disabilities: Students with documented disabilities (through West Georgia’s Accessibility Services) will be given all reasonable accommodations. Students must take the responsibility to make their disability known and request academic adjustments or auxiliary aids. Adjustments needed in relation to test-taking must be brought to the instructor's attention well in advance of the test (at least one week prior).

Academic Honesty: You are expected to achieve and maintain the highest standards of academic honesty and excellence as described in the Undergraduate Catalog. In short, be responsible and do your own work.

Classroom Conduct: Students are expected to be respectful and mindful of each other. Students disturbing or interfering with instruction will be asked to leave.

Mathematics Tutoring Center: The Mathematics Tutoring Center (MTC) is located in room 205 Boyd. The MTC is open Monday – Friday, and students may get assistance in any of their math courses. No appointments are needed for the MTC.

MATH 1113: Spring 2015 Course Calendar

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<thead>
<tr>
<th>Week of</th>
<th>Topics</th>
<th>Assignment</th>
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| Jan. 5 – Jan. 11 | (1) Introduction, syllabus, and what is a concept?  
(2) Exponents  
(3) Radicals and Rational Exponents  
(4) Basics of Functions | Quiz over syllabus due by class time of Jan. 12                               |
| Jan. 12 – Jan. 18 | (1) Concept Maps/Combinations and Compositions of Functions  
(2) Inverse Functions  
(3) Complex Numbers  
(4) Dividing Polynomials | What is a function? Concept map due by Jan. 18 at 11:59 pm. Submit to CourseDen dropbox. |
| Jan. 19 – Jan. 25 | (1) Investigating project 1  
(2) Review for Exam 1  
(3) Exam 1 | First response paper for project 1 due by class time of Jan 26               |
| Jan. 26 – Feb. 1   | (1) Paradigms of Education  
(2) Rational Functions  
(3) Polynomial and Rational Inequalities  
(4) Exponential Functions | What is the purpose of exams? Concept map due by Feb. 1 at 11:59 pm. Submit through CourseDen dropbox. |
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<tr>
<th>Date Range</th>
<th>Topics</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Feb. 2 – Feb. 8</td>
<td>(1) Danger of a single story/Logarithmic Functions</td>
<td>Outline for project 1 due by class time of Feb. 9</td>
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<td>(2) Properties of Logs</td>
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<td>(3) Exponential and Logarithmic Equations</td>
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<td>(4) Exponential Growth and Decay/Modeling</td>
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<td>Feb. 9 – Feb. 15</td>
<td>(1) Perspectives on Project 1</td>
<td>In mathematics, what does it mean to model? Concept map due by Feb. 15 at 11:59 pm. Submit through CourseDen dropbox.</td>
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<td>(2) Review for Exam 2</td>
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<td>(3) Exam 2</td>
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<td>(4) Angles and Radian Measure</td>
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<td>Feb. 16 – Feb. 22</td>
<td>(1) The Unit Circle</td>
<td>Final paper due for project 1 by class time of Mar. 2</td>
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<td>(2) Right Triangle Trigonometry</td>
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<td>(3) Trigonometric Functions of Any Angle</td>
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<td>(2) Graphs of Other Trig Functions</td>
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<td>(3) Inverse Trig Functions</td>
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<td>(4) Applications of Trigonometry</td>
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<td>Mar. 2 – Mar. 8</td>
<td>(1) Trigonometric Identities</td>
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<td>(2) Can we know truth?/Investigating Project 2</td>
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<td>(3) Review for Exam 3</td>
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<td>(4) Exam 3</td>
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<td>Mar. 9 – Mar 15</td>
<td>(1) Sum and Diff Formulas</td>
<td>First response paper for project 2 due by class time of Mar. 23</td>
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<td>(2) Double Angle, Power Reducing, and Half Angle Formulas</td>
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<td>(3) Trigonometric Equations</td>
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<td>Mar. 16 – Mar. 22</td>
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<td>Spring Break</td>
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<td>Mar. 23 – Mar. 29</td>
<td>(1) Law of Sines</td>
<td>Outline for project 2 due by class time of Apr. 6</td>
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<td>(2) Law of Cosines</td>
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<td>(3) Polar Coordinates</td>
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<td>Mar. 30 – Apr. 5</td>
<td>(1) Graphs of Polar Equations</td>
<td>Final paper due for project 2 by class time of Apr. 13</td>
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<td>(2) Vectors</td>
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<td>(3) Perspectives of Project 2</td>
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<td>Apr. 6 – Apr. 12</td>
<td>(1) Systems of Equations in 2 Variables</td>
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<td>(2) Systems of Equations in 3 Variables</td>
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<td>Apr. 13 – Apr. 19</td>
<td>(1) Review for exam 4</td>
<td>Submit through CourseDen dropbox a brief answer to one or more of the following questions by 11:59 on Apr. 19 (your answer does not</td>
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The instructor reserves the right to make changes to this course schedule. It is the student's responsibility to make note of these changes as announced in class.

Students, please carefully review the following information at this link
http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf It contains important material pertaining to your rights and responsibilities in this class. Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester.

**Important Dates**

- Jan. 19: MLK No class
- Jan. 23: Exam 1
- Feb. 12: Exam 2
- Feb. 27: Last day to withdraw with grade of W
- Mar. 6: Exam 3
- Mar. 16 – Mar. 20: Spring Break
- Mar. 27: Math Day No mathematics classes
- Apr. 15: Exam 4
- Apr. 24, 11am – 1:30pm: Final Exam

**References**


Gutstein, Eric (2007). “So one question leads to another”: Using mathematics to develop a pedagogy of questioning. In Na’ilah S. Nasir and Paul Cobb (Eds.), *Improving access to*
mathematics: Diversity and equity in the classroom (51-68), New York, New York: Teachers College Press