MTH 111 – Pre-Calculus

Instructor: Barbara Simonelli-Kelly
Class: M/W 7:00-8:15 Shepard 315
Email: bsimonellikelly@uri.edu
Office Hours: By appointment, after class


Calculator: only a 4 function calculator is allowed. Graphing Calculators or Scientific are Not allowed.
Phones ARE NOT allowed to be used as a calculator.

Course Objectives: The primary goal of MTH 111 is to prepare you for calculus (MTH131 or MTH141). MTH 111 is aimed at the student for whom it will be the first of an important series of courses rather than a last math course. The prerequisite requirement for MTH131 and MTH141 is earning a C- or better in MTH 111.

Learning Objectives:

MSC Rubric Elements:
PCA-1: Inequalities (solve and graph, compound)
PCA-2: Graphs and Graphing (distance, families and shifts, increasing/decreasing)
PCA-3: Linear Equations and Lines (slope, write equations)
PCA-4: Functions (graphs, operations, even/odd, inverses)
PCA-5: Polynomials (factor, expand, parabolas, division, remainder theorem, graph, zeros, endbehavior)
PCA-6: Radicals and Exponents (operations, graph, simplify, radical to fractional exponent)
PCA-7: Rational Expressions (domain, evaluate, asymptotes, graph holes)
PCA-8: Trigonometric Functions (evaluate, covert degrees to radians, domain and range, unit circle, special angle, inverses values and graphs, Pythagorean identities, sum and difference identities)
PCA-9: Logarithms (evaluate, inverse of exponential, radioactive decay and compound interest, solve equations)
PCA-10: Problem Solving

Course Description: (Lec. 3)
This course will cover topics: equations of first and second degree, systems of equations, inequalities, functions and graphs, exponential, logarithmic, and trigonometric functions, applications, an introduction to analytic geometry, and Complex numbers. It is designed for students who need to strengthen their background in mathematics before taking calculus.
Pre: passing a placement test or C- or better in MTH 101. Not for credit for mathematics majors.

Tutoring:
In addition to my office hours, the Academic Enhancement Center is open Monday-Thursday 10am-9pm and Friday from 10am-1pm.

Special Accommodations
If you have a disability or other problem that warrants the need for special accommodations to complete coursework, please see me before or after class to discuss them. You must have your paperwork from Disability Services before any assignment you wish to apply your accommodations to.
Grades: Your grade will be calculated according to the following points:

1. **Assessments and Assignments**
   - 3 closed books, closed notes exams: 300 pts
   - 1 cumulative final exam: 200 pts
   - Webwork online homework: 100 pts
   - Diagnostic Test/ CAE program: 75 pts
   - Class work/participation: 75 pts
   **TOTAL**: 750 pts

2. **Final Grade** = (total points)/750 * 100 = percentage
   - A (93% - 100%) A-
   - (90% - 92%) B+
   - (87% - 89%) B
   - (83% - 86%) B-
   - (80% - 82%) C+
   - (77% - 79%) C
   - (73% - 76%) C-
   - (70% - 72%) D+
   - (67% - 69%) D
   - (60% - 66%) D-
   - (0% - 59%) F

**Missing Class:**
If you are unable to attend class, you are responsible for reviewing the material missed on your own. If an assignment is due on a day that you must be absent, you are responsible for handing it in **before** the end of the normal class period meeting time. All webwork assignments must be completed by the stated deadlines, there are no exceptions. **No late assignments will be accepted.** Make up exams will only be given if permission is granted before the class time the exam is scheduled on the syllabus. Make-ups will only be permitted with a valid excuse. Failure to make up an exam will most likely result in failure in this course.

**WebWork Homework:**
Online homework is administered weekly using the free system WebWork. **Your username** is your URI student ID number, and your default password is the first eight letters of your last name (entered in lowercase). Ignore spaces and characters other than letters. User your entire last name if it contains eight or less letters. Late submissions will not be accepted for any reason. All questions about WebWork should be directed to mth111webwork@gmail.com.

Log in at [https://webwork.math.uri.edu/webwork2/mth111_fall2017/](https://webwork.math.uri.edu/webwork2/mth111_fall2017/)

- Each weekly assignment opens on Monday at 12:01am and is due 10 days later on Wednesday at 11:59pm. Late submissions will not be accepted for any reason.
- The week number and range of availability for each assignment overlap but do not coincide. The week number is listed to display the week during which the problem set was initially assigned, with Week 0 being the sole exception.
- The last column lists the total number of problems assigned during that particular week. Make sure to get them all done by the due date.
- There are 538 total problems assigned in WeBWorK this semester, so approximately 7.2 WeBWorK questions are equal to one MTH 111 grade point.

**College Algebra Enhancement Project:**
On the **first day of class** you will take a diagnostic algebra assessment. You must score a 70% or above to pass and receive 75 points towards your final grade. If you receive a score less than 70%, you will be enrolled in the CAE Project in which you will have the opportunity to earn these points back. If you are to be enrolled, you will receive a registration email with further instructions. Additionally, any student in MTH 111 may choose to participate in the program for supplementary algebra review.
# MTH111-PreCalculus

This schedule or individual assignments are subject to change with fair notice. Notice will be made in class. **You should read all chapters before attempting the problem sets assigned.** Problems have been chosen to represent skills deemed necessary; thus, all problems should be attempted.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Assignments from book</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>W 9/6</td>
<td><strong>Algebra Diagnostic Test</strong></td>
<td>Read chapter 1</td>
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<tr>
<td>2</td>
<td>M 9/11</td>
<td>1.2 Inequalities</td>
<td>(1.2) 1-20, 21-25, 32, 33, 35, 36, 45-57 odd, 67-72</td>
</tr>
<tr>
<td></td>
<td>W 9/13</td>
<td>1.3 Equations and Graphs 1.4 Linear Equations</td>
<td>(1.3) 1-10, 11-14, 53-74 (1.4) 1-45 odd, 53-66</td>
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<tr>
<td>3</td>
<td>M 9/18</td>
<td>1.5 Functions 1.6 Graphs of Relations and Functions</td>
<td>(1.5) 11-18, 20, 24, 26, 28, 30, 31, 33, 35, 37-68, 74-88 (1.6) 1-42, 47, 48, 55-66, 67</td>
</tr>
<tr>
<td></td>
<td>W 9/20</td>
<td>1.7 Transformations and symmetry</td>
<td>(1.7) 1-15 odd, 17-24, 35-65 odd, 67-74, 79, 81, 85</td>
</tr>
<tr>
<td>4</td>
<td>M 9/25</td>
<td>1.8 Operations and Composition</td>
<td>(1.8) 1, 4, 7, 13, 15, 19, 21, 23, 27, 29 – 75odd</td>
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<td></td>
<td>W 9/27</td>
<td>1.9 Inverse Functions</td>
<td>(1.9) 1 – 21, 45 – 52, 61-66 Review chapter 1 for test</td>
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<tr>
<td>5</td>
<td>M 10/2</td>
<td>2.1 Quadratic functions and inequalities 2.2 Complex Numbers</td>
<td>(2.1) 1-15, 21-26, 33, 37, 41, 45-55, 75, 76</td>
</tr>
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<td></td>
<td>W 10/4</td>
<td><strong>TEST 1: chpt 1</strong></td>
<td>(2.2) 9-20, 41, 42, 43, 51, 54, 73-88</td>
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<td>6</td>
<td>M 10/9</td>
<td>ColumbusDay NO CLASS</td>
<td>Read chapter 2</td>
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<td>W 10/11</td>
<td>2.3 Zeros of Polynomials 2.4 Theory of Polynomial equations</td>
<td>(2.3) 1-6, 35-40, 51-72 (2.4) 1-63 odd</td>
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<tr>
<td>7</td>
<td>M 10/16</td>
<td>2.6 Graphs of polynomial functions</td>
<td>(2.6) 3-8, 13-20, 27-36, 41-48, 49, 50, 53-68, 81-92, 95</td>
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<tr>
<td></td>
<td>W 10/18</td>
<td>2.7 Rational Functions and inequalities</td>
<td>(2.7) 1-12, 29-47, 49-56, 81-96</td>
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<tr>
<td>8</td>
<td>M 10/23</td>
<td>3.1 Angles</td>
<td>(3.1) 1-16, 23-28, 41-48, 55-60, 67-74</td>
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<td>W 10/25</td>
<td>3.2 Sine and Cosine</td>
<td>Review Chapter 2 for test</td>
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<tr>
<td>9</td>
<td>M 10/30</td>
<td><strong>Test 2: Chapter 2</strong></td>
<td>(3.2) 3-28</td>
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<td></td>
<td>W 11/1</td>
<td>3.3 Graphs of Sine and Cosine</td>
<td>(3.3) 1-39 odd, 51, 55, 65, 69, 70</td>
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<tr>
<td>10</td>
<td>M 11/6</td>
<td>3.4 The other 4 trig functions Tan/Sec/Csc/Cot</td>
<td>(3.4) 3-28, 51, 55, 67, 71</td>
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|      | W 11/8  | 3.5 Inverse Trig Functions  
3.6 Right Triangle Trig | (3.5) 1-12, 17-28, 33-39, 47, 67, 69, 71  
(3.6) 1-8, 9-14, 23-26, 34, 35, 36 |
| 11   | M 11/13 | Veteran’s day NO CLASS                      |                       |
|      | W 11/15 | 3.7 Trigonometric Identities:  
Pythagorean, odd and even, sum and difference | (3.7) 1-31 odd       |
| 12   | M 11/20 | 3.7 Trigonometric Identities: double and  
half angle, product and sum | Review Chapter 3 for test |
|      | W 11/22 | 4.1 Exponential Functions w/ application   | (4.1) 1-17, 19-26, 27, 28, 43-52, 59-64, 81, 83, 9 |
| 13   | M 11/27 | **Test 3: chapter 3**                      |                       |
|      | W 11/29 | 4.2 Logarithmic functions                  | (4.2) 1-24, 29, 31, 39, 40, 59, 63, 65, 69-83, 93, 97, 98 |
| 14   | M 12/4  | 4.3 Logarithm Rules                        | (4.3) 1-20, 33-42, 43-50 |
|      | W 12/6  | 4.4 Equations with Log Rules               | (4.4) 1-20            |
| Final| M 12/11 | **FINAL EXAM**                             | 7-8:15                |