Course title and number  MATH 150  
Term  Fall 2017  
Class time and location
- Sections 507-512: MWF 11:30 am–12:20 pm in BLOC 169  
- Sections 525-530: MWF 12:40 pm–1:30 pm in MPHY 205  
- Sections 531-536: MWF 1:50 pm–2:40 pm in MPHY 204  
You will also meet on Tuesday or Thursday for recitation. Check your schedule for the time and location.

INSTRUCTOR INFORMATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Benjamin Lynch, PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone number</td>
<td>Department of Mathematics: 845–3261</td>
</tr>
<tr>
<td>e-mail address</td>
<td><a href="mailto:brlynch@math.tamu.edu">brlynch@math.tamu.edu</a></td>
</tr>
<tr>
<td>Office</td>
<td>Blocker 205C</td>
</tr>
<tr>
<td>Office hours</td>
<td>MW 3:00 pm–4:30 pm</td>
</tr>
<tr>
<td>Help Sessions</td>
<td><a href="http://www.math.tamu.edu/courses/helpsessions.html">http://www.math.tamu.edu/courses/helpsessions.html</a></td>
</tr>
<tr>
<td>Week in Review</td>
<td><a href="http://www.math.tamu.edu/~brlynch/150fall17/WIR.html">http://www.math.tamu.edu/~brlynch/150fall17/WIR.html</a></td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION AND PREREQUISITES

Description: Trigonometry and Linear Systems. Graphs, functions, college algebra and trigonometry, linear systems and vectors.

Calculator Policy: No calculators, cell phones, or other electronic devices are allowed on any quizzes or exams. It is recommended that you do as much of your online homework without the use of a calculator as you can.

LEARNING OUTCOMES

This course is focused on quantitative literacy in mathematics found in both business and everyday life. Upon successful completion of this course, students will be able to:

- Perform operations (adding, subtracting, multiplying, dividing) on real numbers, complex numbers, functions, exponents, radicals and vectors
- Graph relations, functions, and vectors
- Solve an equation, a system of equations, and inequalities
- Identify characteristics of a particular function
- Comprehend and solve an application problem (time-to-do work, distance = rate×time, mixtures)
- Understand the importance of domain and be able to find the domain
- Apply exponential functions and logarithmic functions
- Understand and apply basic trigonometry

CORE OBJECTIVES

Critical Thinking
The following critical thinking skills will be assessed on in-class quizzes and exams. Students will

- Think creatively to discern what technique is needed to simplify an expression, or solve an equation or application.
- Analyze functions and their inverses, if they exist.
- Use inquiry to determine if they need to check the domain or check for extraneous solutions after solving an equation.
• Synthesize inverse functions and unique triangles to solve for all of the sides and angles of a triangle.
• Translate movement into a resulting vector

Communication Skills
The following communication skills will be assessed on in-class quizzes, exams, and in lecture. Students will
• Transform functions through shifts, stretches, shrinks, and reflections.
• Interpret graphs and be able to identify their basic parent functions.
• Create a sign-chart model to solve non-linear inequalities.
• Interpret a solution, including any units, to an application problem.
• Discuss with other approaches and solutions to problems in the required recitation.

Empirical and Quantitative Skills
The following empirical and quantitative skills will be assessed on in-class quizzes and exams. Students will

• Solve application problems and draw conclusions regarding the mathematical answer.
• Logically prove if a function is a one-to-one function or not, if a relation is even, odd, or neither, or if a trigonometric equation is an identity or not.
• Identify the domains, range, intercepts, symmetries, zeros, and asymptotes of a function or graphs.
• Analyze an exponential or logarithmic application, including, half-life problem, to determine what technique is needed to solve the problem.
• Transform numerical data into a functional model.
• Understand and apply the difference quotient to various types of functions.

TEXTBOOK AND/OR RESOURCE MATERIAL

• Online Textbook: Precalculus (WebAlg) - 1e by David Manuel, Michael Stecher, and Patti Wells, which will be accessed via WebAssign, your online homework system.

GRADING POLICIES

• Grade Breakdown

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1,2,3</td>
<td>45%</td>
</tr>
<tr>
<td>Worksheets</td>
<td>15%</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

• Grading Scale

<table>
<thead>
<tr>
<th>Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 ≤ Average ≤ 100</td>
<td>A</td>
</tr>
<tr>
<td>80 ≤ Average &lt;90</td>
<td>B</td>
</tr>
<tr>
<td>70 ≤ Average &lt;80</td>
<td>C</td>
</tr>
<tr>
<td>60 ≤ Average &lt;70</td>
<td>D</td>
</tr>
<tr>
<td>Average&lt; 60</td>
<td>F</td>
</tr>
</tbody>
</table>

• Exam Schedule: Part of your exam will be given in lecture and part in recitation.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Odd Sections</th>
<th>Even Sections</th>
<th>Textbook Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>9/19 and 9/20</td>
<td>9/20 and 9/21</td>
<td>1.1 – 3.2</td>
</tr>
<tr>
<td>Exam 2</td>
<td>10/17 and 10/18</td>
<td>10/18 and 10/19</td>
<td>4.1 – 6.1</td>
</tr>
<tr>
<td>Exam 3</td>
<td>11/14 and 11/15</td>
<td>11/15 and 11/16</td>
<td>6.2 – 9.4</td>
</tr>
</tbody>
</table>

• Comprehensive Final Exam Time:
  o Sections 507-512: Wednesday, Dec.13, 10:30 am–12:30 pm
  o Sections 525-530: Monday, Dec.11, 10:30 am–12:30 pm
  o Sections 531-536: Tuesday, Dec. 12, 3:30 pm–5:30 pm
Graded Work

- **Exams**: For your 3 regular exams, you will be taking part of your exam (multiple-choice) in recitation and part of your exam (workout) in lecture. The comprehensive final exam will be multiple choice and taken in the lecture room. No calculators, cellphones, or other electronic devices are allowed. You will need to bring your Texas A&M student ID, a #2 pencil and an eraser. You will also need a standard Aggie Scantron form for your exams in recitation and for your comprehensive final exam.

- **Exam Grade Replacement**: If your lowest exam score is lower than your final exam score, then your final exam score will replace the lowest exam score. This replacement will only be used for one exam. This offers students a chance to improve their grade with a good final exam score, especially if one of their exam scores is much lower than their average for the course.

- **Worksheet**: Each week there will be a group worksheet in recitation. You will not be allowed to use any notes or electronic devices on the worksheet. You must attend the lab section in which you are enrolled to take the worksheet. Occasionally, an individual quiz may be given in place of the worksheet, but it will be announced in advance. The lowest worksheet grade will be dropped.

- **WebAssign**: Online Homework will be done in WebAssign. It will be due every Thursday night at 11:55 pm.
  - Important information such as how to log in, how to access and take assignments, and the Student Help Request Form can be found at: [http://www.math.tamu.edu/courses/eHomework/](http://www.math.tamu.edu/courses/eHomework/).
  - A WebAssign account has an access fee and you will need to “purchase access online” during the first two weeks of school. After that, you risk being locked out of the system and missing important assignments.
  - Do not wait until the last minute to complete your WebAssign homework. Technical difficulties will not be an excuse for missing a WebAssign deadline.
  - There will be no makeup homework assignments since your 2 lowest homework grades are dropped.

Attendance and Makeup policies

- **Excused absences**: Attendance is mandatory and may affect your grade. For excused absences we refer the student to Student Rule 7 at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). Excuses for absences must be substantiated by appropriate documentation. Falsification of documentation is a violation of the Honor Code. Notification before the absence is required when possible. Otherwise, you must notify me within 2 working days of the missed exam, quiz, or assignment to arrange a makeup. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is not an excused absence.

- **Makeup exams** will be only allowed due to excused absences and the makeup must be taken at the next possible makeup time listed at [http://www.math.tamu.edu/courses/makeupexams.html](http://www.math.tamu.edu/courses/makeupexams.html). If you know ahead of time you will be absent during an exam, you must notify the instructor in advance.

**COURSE TOPICS** (Tentative weekly schedule)

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>REQUIRED READING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, real numbers, exponents, radicals, complex numbers,</td>
<td>Sections 1.1 – 1.3</td>
</tr>
<tr>
<td>2</td>
<td>Polynomials, rational expressions, solving equations</td>
<td>Sections 2.1 – 2.2, and Rational Expressions</td>
</tr>
<tr>
<td>3</td>
<td>Solving equations, solving inequalities</td>
<td>Sections 3.1 – 3.2</td>
</tr>
<tr>
<td>4</td>
<td>Review, EXAM 1 (1.1 – 3.2), Rectangular coordinate system, Distance Formula</td>
<td>Sections 4.1 – 4.2</td>
</tr>
<tr>
<td>5</td>
<td>Distance Formula, Graphs of equations, linear equations and inequalities in two variables, functions</td>
<td>Sections 4.2 – 4.4, 5.1</td>
</tr>
<tr>
<td>6</td>
<td>Functions, transformations of functions, quadratic functions</td>
<td>Sections 5.2 – 5.4</td>
</tr>
<tr>
<td>7</td>
<td>Combinations of functions, inverse functions, polynomial functions</td>
<td>Sections 5.5, 6.1</td>
</tr>
<tr>
<td>8</td>
<td>Review, EXAM 2 (4.1 – 6.1), Rational functions</td>
<td>Section 6.2</td>
</tr>
<tr>
<td>9</td>
<td>Exponential functions, logarithmic functions</td>
<td>Sections 7.1 – 7.2</td>
</tr>
<tr>
<td>10</td>
<td>Exponential and logarithmic equations, applications of exponentials and logarithms, systems of equations</td>
<td>Sections 7.3 – 7.4, 8.1 – 8.2, and nonlinear systems</td>
</tr>
</tbody>
</table>
11 Angles and circles, trigonometric functions and their graphs, Sections 9.1 – 9.4
digonometric identities

12 Review, EXAM 3 (6.2 – 9.4), Inverse trigonometric functions Sections 9.5

13 Law of sines and cosines, solving trigonometric equation Sections 9.6 and Solving Trig Equations

14/15 Solving trigonometric equations, vectors, scalar multiplication, vector addition, vector length, dot product, Sections 10.1 – 10.5
Review for Final Exam

AMERICANS WITH DISABILITIES ACT (ADA)
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

ACADEMIC INTEGRITY
All Aggie Honor Code violations will be reported. Examples include, but are not limited to, copying another individuals work, allowing someone to copy your work, bringing unauthorized materials into an exam, or having someone else complete your assignments. Online homework, individual quizzes, and examinations are to be taken individually. You may not discuss the contents of an exam or quiz until they are returned. Material from the class such as exams, quizzes, etc. may not be shared or posted online in any form. Sanctions for violating these policies could range from receiving a 0 on the assignment to receiving an F for the course, as well as any sanctions deemed necessary by the Aggie Honor Council.

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
For additional information please visit: http://aggiehonor.tamu.edu

Suggestions for Success in the Course:
• Attend all your classes and labs (simple, but effective advice)
• Bring your class notes with you
• Review your class notes after lecture
• Read and study the online textbook
• Come to office hours to ask questions
• Complete all your WebAssign homework
• Keep up with the course
• Form a study group with other members of the class

Places to Receive Additional Help:
• Help Sessions are a place to see homework-type problems worked and a place to get online homework help. Help Sessions usually start about the second week of school. Help session information can be found at http://www.math.tamu.edu/courses/helpsessions.html.
• Weekly reviews will be given by Math 150 instructor Benjamin Lynch on Sundays from 4:00 to 6:00. This includes an exam review on the week of your exam. WIR is not held the week immediately after an exam week. The WIR starts Sunday, September 3. See http://www.math.tamu.edu/~brlynch/150fall17/WIR.html for more information, including notes that will be posted for each review.
• There are streaming videos by Dr. Sherry Scarborough covering many of our 150 topics available at http://www.math.tamu.edu/~sherry.scarborough/150topics.html#stream.
• Get a personal tutor (a list is available outside Blocker 227).

Helpful links
• Academic Calendar http://registrar.tamu.edu/General/Calendar.aspx
• Final Exam Schedule http://registrar.tamu.edu/General/FinalSchedule.aspx
• On-line Catalog http://catalog.tamu.edu/
• Religious Observances http://dof.tamu.edu/content/religious-observance