

CASPER COLLEGE COURSE SYLLABUS
MATH 1450-01
PRE-CALCULUS ALGEBRA & TRIGONOMETRY

Semester/Year: Fall 2015

Lecture Hours: 5

Lab Hours: 0

Credit Hours: 5

Class Time: 9:00-9:50 a.m.

Days: MTWThF

Room: PS 117

Instructor's Name: Jake McIntyre

Instructor's Office: PS 337

Office Phone: 268-2769

Email: jjmcintyre@caspercollege.edu

Office Hours: M-F from 10-10:50 a.m., Monday at 2 p.m. and also Friday from 11-11:50 a.m. in the MLC (PS 104) or by appointment.

Prerequisites: ACT Math score of 24-25; or a COMPASS placement score in the Algebra domain of 75-100 or College Algebra domain of 32-64 within the past year; or a "C" or better in MATH 0930 or MATH 0934. Deletes credit for MATH 1400, and two hours of MATH 1405.

Course Description: Elementary algebraic and trigonometric functions and graphing for mathematics, science, and engineering majors preparing for the regular calculus sequence. Includes the material in both MATH 1400 and MATH 1405 (From the Casper College Catalog).

Goal: The primary goal of this course is to teach students to think logically and critically. The course will also provide students with mathematical tools they can use to solve problems associated with their field of study and to prepare them for further studies in calculus.

Outcomes: Students should:

1. Be able to use function concepts including; evaluating, operations, composition, inverses, and transformations.
2. Solve polynomial, exponential, and logarithmic equations and relate and interpret these solutions.
3. Be able to graph linear, polynomial, exponential, logarithmic, absolute value, square root, piecewise defined, and rational functions.
4. Be able to model and interpret real-world problems using polynomial equations or regressions.
5. Be able to solve systems of equations.
6. Be able to evaluate trigonometric functions.
7. Be able to graph trigonometric functions.
8. Be able to solve right triangles, and oblique triangles using the Law of Sines and Cosines.
9. Be able to solve trigonometric equations and relate and interpret these solutions.
10. Be able to verify trigonometric identities.
11. Be able to apply concepts of trigonometry such as; parametric equations, polar coordinates, vectors, complex number representation, or conic sections.
12. Solve problems using critical thinking and creativity
13. Use quantitative analytical skills to evaluate and process numerical data

Required Text, Readings, Materials:

- There is no required text however an open-source (free) textbook can be downloaded from the Moodle page to be used as a reference.
- You will need internet access with an updated browser as we will be using Webwork for our online homework (Webwork is free!)

Methodology:

Instruction: Lectures will be given in class.

Online Work: For each section covered there will be an online homework assignment. Online homework will be given through Webwork and can be taken any time after they are opened until the due date which will be one week after the corresponding section is covered in class.

Written Work:

Weekly Quizzes: Each week a paper and pencil quiz will be posted in Moodle (usually on Friday) which is to be printed out and completed by the following Friday. The problems in the quizzes will cover that week’s material and usually be more challenging; being applications, requiring of a proof, or some other written justification. These written quizzes are to be done using a pencil and paper and you must show all work to receive proper credit.

In-Class Projects/Labs: There will also be on occasion where we will do an in-class project or lab. Some of these projects/labs will require technology (wolframalpha.com, Mathematica, Sage, Excel, etc.). Projects/Labs will also be due a week after assigned.

Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.

Exams: In addition to the assignments and quizzes, there will be eight exams. There will be a final comprehensive exam integrated into the Unit 8 Exam. The exams will be announced ahead of time. Poor attendance is not an excuse for missing an exam; it is your responsibility to know the dates of the exams. My policy on taking an exam late: Everyone has one chance to take an exam late, as long as you call and leave a message telling me why you aren’t able to take the test on time, and take the exam in the Test Proctoring Center before the graded exams are handed back to the rest of the class. This option is to be used only for illness, emergencies, etc., and I reserve the right to refuse to allow someone to take a test late for non-emergencies, even if it is your first time (not being ready does not qualify as an emergency!). If you know ahead of time that you will be absent on the day of an exam, arrangements can sometimes be made to take the exam early. If you are involved in a sport or club that may cause you to miss class time, please let me know in advance. Information about the Test Proctoring Center will be provided.

Evaluation Criteria:

Grade distribution

Exams	65%
Online Work	20%
Written Work	15%

Percent needed for a specific grade

- A = 90 – 100%
- B = 80-89%
- C = 79-79%
- D = 60-69%
- F = below 60%

Class Policies:

Respect for Others: To avoid disrupting the work of others, please plan to arrive at class on time and be prepared to work (i.e., have your pencil, eraser, book, paper, homework and calculator). Additionally, please feel free to offer your opinions and questions to the class, but do not carry on side discussions. Also refrain from leaving and returning the classroom during the allotted class time. Cell phones, pagers, beepers, laptops, etc. should be turned off during class and please refrain from text messaging. In general, students may not engage in an activity which the instructor deems disruptive or counter-productive to the goals of the class. Instructors have the responsibility to remove offending students from the class. Repetition of offensive behavior may result in expulsion from the class.

Attendance: Attendance will be taken for this class. Students who find themselves in the position of having to miss numerous classes may need to withdraw and take the course when regular attendance is possible. If you do not attend class you are still expected to be familiar with the material and be prepared for tests. If you just quit attending and do not officially withdraw, your grade will also be an “F”.

Calculator: You will be allowed to use a scientific (non-graphing) calculator for this course. It must have buttons for trigonometric functions (sin,cos,tan).

Where to Go for Help:

- My office. See the top of the syllabus for contact information and office hours.
- The Math Learning Center (also called the Math Lab) is a place you can go for help. Staff and student workers are there to answer questions, or you can go if you just need a place to do your math homework. The Math Learning Center is located in PS 104. The exact hours it is open will be announced, or you can look on the door. Make sure you get help as soon as you start having trouble!

Dates: Refer to the Casper College Class Schedule for important dates such as holidays and Finals.

Withdraw Deadline: November 12th (I will not give a “W” after the withdrawal deadline!)

Student Rights and Responsibilities: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Vice President for Academic Affairs.

Academic Dishonesty - Cheating & Plagiarism: Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly.

Changes: The instructor reserves the right to make any changes if deemed necessary. Information contained in this syllabus, other than the grading, make-up, and attendance policies, may be subject to change with advance notice, as deemed appropriate by the instructor. All changes will be announced in class or emailed to you, so absenteeism is no excuse for not being aware of all changes.

Tentative Calendar:

This schedule is tentative and subject to change.

Unit 1

- 1.1 The Distance and Midpoint Formulas
 - 1.2 Graphs of Equations in 2 Variables; Intercepts, Symmetry
 - 1.3 Lines
 - 1.4 Solving Systems of Equations
 - 1.5 Solving Systems Using Matrices
 - 1.6 Functions
 - 1.7 ARC and the Difference Quotient
- Review

Exam 1

Unit 2

- 2.1 Properties and Graphs of Functions
 - 2.2 Transformations of Functions
 - 2.3 Piece-Wise Functions
 - 2.4 Linear Functions
 - 2.5 Non-Linear Equations
 - 2.6 Complex Numbers and Quadratics
 - 2.7 Quadratic Functions and Their Properties
 - 2.8 Quadratic Modeling
- Review

Exam 2

Unit 3

- 3.1 Polynomial Functions and Their Graphs
 - 3.2 Dividing Polynomial; Remainder and Factor
 - 3.3 Zeros of Polynomial Function Theorems
 - 3.4 Properties of Rational Functions
 - 3.5 The Graph of a Rational Function
 - 3.6 Linear Inequalities and Absolute Value Inequalities
 - 3.7 Polynomial and Rational Inequalities
- Review

Exam 3

Unit 4

- 4.1 Composite Functions
 - 4.2 Inverse Functions
 - 4.3 Exponential Functions
 - 4.4 Logarithmic Functions
 - 4.5 Properties of Logarithms
 - 4.6 Logarithmic and Exponential Equations
 - 4.7 Exponential and Logarithmic Models
- Review

Exam 4

Unit 5

- 5.1 Angles and Radian Measure
 - 5.2 Right Triangle Trigonometry
 - 5.3 Trigonometric Functions; The Unit Circle
 - 5.4 Trigonometric Functions of Any Angle
 - 5.5 Inverse Trigonometric Functions
 - 5.6 Applications of Trigonometric Functions
- Review

Exam 5

Unit 6

- 6.1 Graphs of Sine and Cosine Functions
 - 6.2 Graphs of Other Trigonometric Functions
 - 6.3 Simple Harmonic Motion
 - 6.4 Verifying Trigonometric Identities
 - 6.5 Sum and Difference Formulas
 - 6.6 Double-Angle and Half-Angle Formulas
 - 6.7 Trigonometric Equations
- Review

Exam 6

Unit 7

- 7.1 The Law of Sines
 - 7.2 The Law of Cosines
 - 7.3 Area of a Triangle
 - 7.4 Parametric Equations
 - 7.5 Polar Coordinates
 - 7.6 Vectors
 - 7.7 The Dot Product
- Review

Exam 7

Unit 8

- 8.1 Circles
 - 8.2 The Parabola
 - 8.3 The Ellipse
 - 8.4 The Hyperbola
- Review

Exam 8/Final Exam