The College of Western Idaho Course Syllabus
Math 147 Fall 22

Notice of Student and Instructor Accountability

Students and Instructors are accountable for all information on this syllabus, which is located in this course's Blackboard Site.

Course Information

Mathematics
College Algebra & Trigonometry
Math 147
Course Modality: F2F

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Course Description

This is a single course equivalent to College Algebra (MATH 143) plus Trigonometry (MATH 144). This course includes fundamental concepts of algebra and trigonometry; equations and inequalities; functions and graphs; polynomial, rational, exponential, and logarithmic functions; systems of equations and inequalities; conics; the Binomial Theorem; right triangle and circular function approaches to trigonometry; graphs of trig functions; trig identities; conditional equations; right and non-right triangle applications of trigonometry; inverse trig functions; trigonometry of complex numbers, including DeMoivre's Theorem; polar coordinates and equations; and parametric equations. Credit hours are not granted in both MATH 143 and MATH 147, nor in both MATH 144 and MATH 147. PREREQ: Mastery of Units 1-12 in MATH 095 or equivalent placement score. *(This CWI course meets Idaho State Board of Education GEM competency requirements for GEM 3 - Mathematical Ways of Knowing.). (5 lecture hours, 0 lab hours, 5 credits)*

Schedule

This is a dual-credit class at Meridian Technical Charter High School (MTCHS). It meets daily from 11:40am-12:29pm in room 109. This class will meet over the course of two semesters.

Instructor Availability

MTCHS building hours are Monday thru Friday from 7AM to 3PM. The instructor is available most days before and after school and at lunch time. The instructor is not available Wednesday mornings due to weekly staff meetings at this time.

The best way to contact the instructor is by email. All emails will be returned within 24 hours on business days.

Course Learning Outcomes

The Course Objective is to provide students with the mathematical foundation necessary (1) for future mathematics courses such as Calculus and (2) to be able to learn new concepts helpful to them as employees, citizens, and consumers.

Students completing this course are expected to acquire the ability and skills to:

SLO 1 Use and Understand Linear, Literal, Radical and Absolute Value Equations, Inequalities and Functions.

1. Classify an equation/inequality/function or system based on its characteristics
2. Solve Problems
    a) Select appropriate strategy
    b) Apply strategy and solve problem
    c) Check solution(s) for accuracy and reasonableness
    d) Interpret solution within context of problem
    e) Justify process and solutions
    f) Reflect upon process regarding efficiency, optional strategies and additional uses
3. Graphs
    a) Identify graphs of basic equations/functions
    b) Graph basic graphs and their transformations
    c) Create equation/function from graph
    d) Identify basic characteristics including domain, range, areas where graph is increasing, decreasing or constant, extrema, intercepts, and minimum degree where appropriate
4. Applied Problems
    a) Analyze and interpret problem
    b) Select appropriate strategy
    c) Apply strategy and solve problem
    d) Check solution(s) for accuracy and reasonableness
    e) Interpret solution within context of problem
    f) Justify process and solutions
    g) Reflect upon process regarding efficiency, optional strategies and additional uses

SLO 2 Use and Understand Quadratic and Conic Section Equations, Inequalities and Functions.

1. Classify an equation/inequality/function or system based on its characteristics
2. Solve Problems
    a) Select appropriate strategy
    b) Apply strategy and solve problem
    c) Check solution(s) for accuracy and reasonableness
    d) Interpret solution within context of problem
    e) Justify process and solutions
    f) Reflect upon process regarding efficiency, optional strategies and additional uses
3. Graphs
    a) Identify graphs of basic equations/functions
    b) Graph basic graphs and their transformations
    c) Create equation/function from graph

d) Identify basic characteristics including domain, range, areas where graph is increasing, decreasing or constant, extrema, intercepts, and minimum degree where appropriate

4. Applied Problems
    a) Analyze and interpret problem
    b) Select appropriate strategy
    c) Apply strategy and solve problem
    d) Check solution(s) for accuracy and reasonableness
    e) Interpret solution within context of problem
    f) Justify process and solutions
    g) Reflect upon process regarding efficiency, optional strategies and additional uses

SLO 3 Use and Understand Polynomial and Rational Equations, Inequalities and Functions.

1. Classify an equation/inequality/function or system based on its characteristics
2. Solve Problems
    a) Select appropriate strategy
    b) Apply strategy and solve problem
    c) Check solution(s) for accuracy and reasonableness
    d) Interpret solution within context of problem
    e) Justify process and solutions
    f) Reflect upon process regarding efficiency, optional strategies and additional uses
3. Graphs
    a) Identify graphs of basic equations/functions
    b) Graph basic graphs and their transformations
    c) Create equation/function from graph
    d) Identify basic characteristics including domain, range, areas where graph is increasing, decreasing or constant, extrema, intercepts, and minimum degree where appropriate
4. Applied Problems
    a) Analyze and interpret problem
    b) Select appropriate strategy
    c) Apply strategy and solve problem
    d) Check solution(s) for accuracy and reasonableness
    e) Interpret solution within context of problem
    f) Justify process and solutions
    g) Reflect upon process regarding efficiency, optional strategies and additional uses

SLO 4 Use and Understand Exponential and Logarithmic Equations, Inequalities and Functions.

1. Classify an equation/inequality/function or system based on its characteristics
2. Solve Problems
    a) Select appropriate strategy
    b) Apply strategy and solve problem
    c) Check solution(s) for accuracy and reasonableness
    d) Interpret solution within context of problem
    e) Justify process and solutions
    f) Reflect upon process regarding efficiency, optional strategies and additional uses
3. Graphs
    a) Identify graphs of basic equations/functions
    b) Graph basic graphs and their transformations
    c) Create equation/function from graph

d) Identify basic characteristics including domain, range, areas where graph is increasing, decreasing or constant, extrema, intercepts, and minimum degree where appropriate

4. Applied Problems
    a) Analyze and interpret problem
    b) Select appropriate strategy
    c) Apply strategy and solve problem
    d) Check solution(s) for accuracy and reasonableness
    e) Interpret solution within context of problem
    f) Justify process and solutions
    g) Reflect upon process regarding efficiency, optional strategies and additional uses

SLO 5 Apply Trigonometric Content.

1. Create mathematical models
2. Solve application problems
3. Justify and interpret solutions within the context of the problem
4. Communicate rationale behind choice of strategy

SLO 6 Use and Understand Trigonometric Functions.

1. Understand right triangle and circular functions definitions.
2. Evaluate trigonometric functions and their inverses
3. Solve right triangles
4. Solve trigonometric equations.
5. Identify and create basic sine and cosine graphs and perform simple transformations.

SLO 7 Use and Understand Trigonometric Identities.

1. Simplify trigonometric expressions.
2. Verify trigonometric identities.
3. Evaluate trigonometric functions
4. Solve any triangle

SLO 8 Use and Understand Related Trigonometric Concepts.

1. Use and understand complex numbers in trigonometric form
2. Solve polar equations
3. Solve parametric equations

Outcomes Assessment

The student learning outcomes will be assessed using assignments, quizzes, unit tests, and a final exam. The results of the final exam will be used to report student success at meeting the student learning outcomes on the Outcomes Assessment Matrix.

Grading Policy

Grades are weighted. Tests are 60% (chapter tests are 40% and the final is 20%) of the overall grade. Quizzes are 30% and classwork is 10%. There will be a cumulative final exam. Students must score 60% or better on the final exam in order to receive a C or better for the course. This means that if a student fails the final exam, the student would earn either a D or an F for the course. Test and quiz problems are graded on a 7-point scale. Assignments are graded on completion. Incomplete assignments will not be accepted. Late assignments are graded at 70%. Students are provided notebooks for assignments and taking notes. A summary of grading criteria is outlined below:

7-Point Scale

7 Demonstrates excellent understanding. No errors.
6 Demonstrates very good understanding. Minor arithmetic error. No conceptual errors.
5 Demonstrates good understanding. One significant arithmetic error and/or minor conceptual error.
3 Demonstrates limited understanding. At least one significant conceptual error.
1 Insufficient work shown to evaluate understanding of concept.
0 No work shown.

Category	**Weight**
Final	20%
Chapter Tests	35%
Quizzes	30%
Classwork	15%

Letter Grade Scale:

A	90-100%
B	80-89%
C	70-79%

At MTCHS a grade lower than 70% results in an N/C. For CWI, a grade between 0-69% results in a D. The CWI grade is separate from the MTCHS grade.

Per departmental policy, a student must earn at least a 60% on the common final exam to be eligible to pass the class with a grade of C or better. Students whose overall average is 70% or better after failing the common final, will be given a letter grade of D and will be offered the opportunity to take a challenge exam.

- Challenge Exam: This exam is available for a limited time after the end of the semester. Students who can earn a 60% or better on the challenge exam will have their grade changed from the D given based on the departmental policy to the letter grade that matches their *original* semester average. Students eligible for this challenge opportunity will be notified by their instructor of their eligibility along with details regarding dates of availability and the timeframe for grade changes. Please note: This opportunity is not available to all students who fail the final exam. It is only available to students who fail the final exam whose semester average stays at 70% or above after having done so.

Textbooks and Required Materials

The textbook for the course is Algebra & Trigonometry: Graphs and Models, Sixth Edition, by Bittinger, 2017. The course fee pays for access to MyMathLab. These course materials are integrated into your Blackboard course. This access also contains the ebook.

A scientific calculator is needed for this course.

Instructional Conversation

Learning is an active exchange between faculty and student.
As a faculty, I will

- Instruct through direct instruction and collaboration.
- Assess through observation and evaluating coursework.
- Inform through answering student questions and providing important course information.
- Facilitate through whole class learning and small groups.

As a student, you will

- Attend class regularly.
- Submit assignment and assessments.
- Participate by engaging in mathematical discussion with peers and instructor.
- Interact by communicating with instructor regarding course content, questions, etc.

Course Calendar

Week	Topics
1	1.1 Introduction to Graphing 1.2 Funtions and Graphs 1.3 Linear Funcitons, Slope, and Applications
2	1.4 Equations of Lines and Modeling 1.5 Linear Equations, Functions, Zeros, and Applicaitons 1.6 Solving Linear Inequalities
3	Chapter 1 Review Chapter 1 Test
4	2.1 Increasing, Decreasing, and Piecewise Functions; Applicaitons 2.2 The Algebra of Functions 2.3 The composition of Functions
5	2.4 Symmetry 2.5 Transformations 2.6 Variation and Applications
6	Chapter 2 Review Chapter 2 Test
7	3.1 The Complex Numbers 3.2 Quadratic Equations, Functions, Zeros and Models
8	3.2 Quadratic Equations, Fucntions, Zeros and Models 3.3 Analzing Grpahs of Quadratic Functions
9	3.4 Solving Rational Equations and Radical Equations 3.5 Solving Equations and Inequalities with Absolute Value
10	Chapter 3 Review Chapter 3 Test
11	4.1 Polynomial Functions and Modeling 4.2 Graphing Polynomial Functions
12	4.3 Polynomial Division: The Remainder and Factor Theorems 4.4 Theorem about Zeros of Polynomial Functions

13	4.5 Rational Functions 4.6 Polynomial Inequalities and Rational Inequalities
14	Chapter 4 Review Chapter 4 Test
15	5.1 Inverse Functions 5.2 Exponential Functions and Graphs
16	5.3 Logarithmic Functions and Graphs 5.4 Properties of Logarithmic Functions
17	5.5 Solving Exponential Equations and Logarithmic Equations 5.6 Applications and Models: Growth and Decay; Compound Interest
18	Chapter 5 Review Chapter 5 Test
19	6.1 Trigonometric Functions of Acute Angles 6.2 Applications of Right Triangles
20	6.3 Trigonometirc Functions of Any Angle 6.4 Radians, Arc Length, and Angular Speed
21	6.5 Circular Funcitons: Graphs and Properties 6.6 Grpahs of Transformed Sine Fucntiosn and Cosine Functions
22	Chapter 6 Review Chapter 6 Test
23	7.1 Identities: Pythagorean and Sum and Difference 7.2 Identities: Cofunction, Double-Angle, and Half Angle
24	7.3 Proving Trigonometric Identities 7.4 Inverses of the Trigonometric Functions
25	7.5 Solving Trigonometric Functions Chapter 7 Review Chapter 7 Test
26	8.1 Law of Sines 8.2 Law of Cosines
27	8.3 Complex Numbers: Trigonometric Notation 8.4 Polar Coordinates and Graphs
28	Chapter 8 Review Chapter 8 Test

29	9.1 Systems of LInear Equations in Two Variables 9.2 Systems of Equations in Three Variables
30	9.7 System of Inequalities and Linear Programming Ch. 9 Review Ch. 9 Test
31	10.1 Parabolas 10.2 Circles and the Ellipse
32	10.3 Hyperbolas 10.4 Nonlinear System of Equations and Inequalities 10.7 Parametric Equeations
33	Chapter 10 Review Chapter 10 Test
34	Final Review
35	Final

Course Expectations

- Students are encouraged to take responsibility for their learning. Only the student knows what they know and what they do not know, so it is up to the student to ask for additional help when necessary. The average student can expect to spend approximately two-four hours per week preparing for class.
- Smoking/Eating/Drinking will not be allowed in the classroom
- Late Work Policy as Outlined in MTCHS Handbook: Students may receive no more than a 70% for any late assignment. Late work policies are defined by individual instructors in course syllabi. No late work will be accepted after the end of grading terms such as quarter and semester. Any late or missing assignment will be scored based on original scoring. If the student earns a 70% or higher, then the student will receive a 70% on the assignment. If the student earns less than a 70%, he/she will earn that percentage. Extenuating circumstances will be dealt with by the instructor.
- Attendance Policy as outlined in the MTCHS handbook.

Personal Technical Skills

This course will not provide information on how to use a computer, use Blackboard, navigate the web or manage electronic files. Students who are having difficulty should contact their instructor, IT Help Desk or Tutoring Services. Please use the resources listed above or speak with the instructor before dropping a course.

Students must be able to do the following with or without accommodation:

- Use an internet browser to navigate the internet and Blackboard.
- Download, upload, create, save, edit and open documents using Microsoft Office applications, such Word, Excel and PowerPoint.
- Download and upload audio and video files.

Civility and Behavioral Expectations

The College of Western Idaho is committed to educational excellence and recognizes that to achieve that excellence, students, faculty, and staff have a right to be in a safe environment, free of disturbance and civil in all aspects of human relations. Membership in the CWI learning community places a special obligation on all members to preserve the safe learning environment, regardless of the medium of the environment. It is the responsibility of instructors to determine, maintain, and enforce the standards of behavior required to preserve that safe environment.

Behavior that has a negative impact on the learning environment is prohibited. Such behavior may include, but is not limited to, rude, sarcastic, obscene, or disrespectful and/or disruptive behavior. Instructors will determine the appropriate response to problematic behavior in line with the procedures stated in the CWI Student Handbook. Problematic behavior may result in a student being removed from the class session and/or referred to the CWI Academic Conduct Process. For information on how problematic behavior will be managed, see the CWI Student Handbook. It is the student's responsibility to check their email to receive notification of any scheduled appointments or other urgent communications.

Any student or other member of the learning community may report a violation of the Student Code of Conduct here.

Academic Integrity

One of the College's Core Themes is Instructional Excellence, and in order to achieve instructional Excellence, academic integrity must be upheld. Academic Integrity is the "commitment to five fundamental values: honesty, trust, fairness, respect, and responsibility. … these five values, plus the courage to act on them even in the face of adversity, are truly foundational to the academy" (*The Fundamental Values of Academic Integrity,* 2013). These values are especially important in how students represent their own learning, ideas, and work. Practicing academic integrity includes, but is not limited to, non-participation in the following behaviors: cheating, plagiarism, falsifying information, unauthorized collaboration, facilitating academic dishonesty, and violating program policies and procedures.

For additional information on academic integrity expectations, see the Student Code of Conduct. Violations may result in disciplinary action ranging from failure of the assignment to failure of the entire course. Acts of academic dishonesty, especially when sanctions are given, are reported and run through the Academic Conduct Process. Repeated acts of academic dishonesty have more severe institutional consequences.

Title IX & A Respectful Community

Title IX guarantees all students the right to an education free from discrimination on the basis of sex. This includes the right to an education free from sexual harassment, including sexual assault. This may include unwelcome conduct of a sexual nature in class, or in online discussion boards or through chat or video conferences. This law also protects students from discrimination based on pregnancy or being a parent and provides support options as well. If you, or someone you know, may have been experienced sexual harassment or discrimination of any kind, you are encouraged to report it to the College Title IX Coordinator by completing a report here, or by e-mailing respectfulcommunity@cwi.edu. Filing a report allows the College to provide supportive measures to those involved. It does not obligate a student to

go forward with an investigation, and all information reported is protected under federal law. For more information, click here.

Student Services

CWI provides a number of offices and services to assist students on their academic journey. Below is a list of the services most commonly accessed by students:

- One Stop Service Centers – Provides assistance with admissions, advising, registration, financial aid, and most other common needs you may have. They are a good first stop for any questions.
- Student Disability Services – Provides accommodations and support for students with a range of disabilities.
- Counseling Services – Short-term counseling for students provided free of charge.
- Library & Research Support – Assists students with research, study skills, textbook reserves and other services key to academic success.
- Tutoring Center – Free tutoring services on a range of academic subjects, available to all enrolled students.
- Writing Center – Provides strategies to help students identify opportunities to improve the quality of their writing, free of charge.
- Assessment & Testing – Proctoring services for a range of course exams, accommodated testing, and outside certification tests.
- Student Affairs – Provides a range of engagement opportunities, including professional and interest organizations, student government, support for veteran students & families, and CARE Services to support students through unexpected life events.

CWI COVID-19 Response

CWI is committed to providing a safe learning environment for all of our students. We will be monitoring the class environment and delivery to ensure continued compliance with CDC and State of Idaho guidelines. Any change to course delivery will be communicated directly to students.

Emergency Procedures

Periodically, it is necessary to practice emergency school lockdowns, egress, evacuation, and loss of power exercises in accordance with the MTCHS Emergency Response Plan. The MTCHS Emergency Response Plan and Procedures can be found on the school's website and is updated annually.

Idaho General Education Matriculation (GEM) Competency

This course meets the Idaho State Board Gen Ed Matriculation (GEM) course competencies for **Mathematical Ways of Knowing** courses. For more information see the State Board competencies.

Signature Assignments

This course meets the Gen Ed Program Outcome of **Solve Problems** through its Signature assignment. For more information see the CWI Gen Ed Program Outcomes

Affidavit of Syllabus as Contract

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Student Parent