The College of Western Idaho Course Syllabus
Math 175 Fall 23

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
Calculus II
Math 175
Course Modality: F2F

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Course Description
This is the second course in the calculus sequence. It covers techniques of integration, improper integrals, Simpson's Rule, Trapezoid Rule, arc length, surface area, and other applications of integration, direction (slope) fields, parametric equations, polar calculus, conic sections, infinite sequences and series, power series, and Taylor's formula. PREREQ: MATH 170. *(4 lecture hours, 0 lab hours, 4 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 students majoring in the mathematical and physical sciences, engineering, mathematics education, and related fields, and (2) to be able to develop strong mathematical reasoning skills, clear conceptual understanding, and the ability to think critically.

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

I. Use definite integrals to solve application problems.
   A. Find volumes using cross-sections and cylindrical shells.
   B. Find arc length and areas of surfaces of revolution.
   C. Find work done by a force and find the location of an object's center of mass.

II. Apply techniques of integration.
   A. Evaluate integrals using basic integration formulas, using substitution, and using integration by parts.
   B. Evaluate trigonometric integrals.
   C. Evaluate integrals using trigonometric substitutions.
   D. Evaluate integrals of rational functions by partial fractions.
   E. Use tables and computer algebra systems to evaluate integrals.
   F. Use the Trapezoidal Rule and Simpson's Rule to approximate nonelementary integrals and find an upper bound for the error.
   G. Use integration, the direct comparison test, or the limit comparison test to determine whether an improper integral converges.

III. Use first-order differential equations to solve real-world problems.
   A. Match differential equations to slope fields.
   B. Use Euler's Method to calculate approximations to the solution to an initial value problem and investigate the accuracy of the approximations.
   C. Solve first-order differential equations using an integrating factor.
   D. Solve applications, such as problems involving motion along a line, orthogonal trajectories, or mixture problems

IV. Understand infinite sequences and series.
   A. Determine convergence of sequences.
   B. Determine convergence of series using the test for divergence, the integral test, the comparison test, the limit comparison test, the absolute convergence test, the ratio test, the root test, and the alternating series test.
   C. Find the sum of a convergent geometric series and the sum of a telescoping series using partial fractions.
   D. Find the radius and interval of convergence for a power series.
   E. Find the sum of a given Maclaurin series.
   F. Generate Taylor polynomials for a given function centered at a given value.
   G. Find binomial series for given a function.
   H. Use frequently used Taylor series (1) to approximate integrals of nonelementary functions with a given error bound, (2) to evaluate limits involving indeterminate forms, and (3) find the sum of a series.

V. Use parametric equations and polar coordinates to understand curves in the plane.
   A. Graph parametric curves, polar regions, and polar curves.
   B. Find the equation for the line tangent to a parmetrized curve at a given time.
   C. Graph conic sections, including parabolas, ellipses, and hyperbolas, using standard Cartesian equations and using polar equations.
   D. Find eccentricity, focus/foci, and directrix/directrices for conic sections.

E. Find lengths of curves and surface areas using parametric equations and using polar coordinates.
    1. Find the equation for a conic section satisfying given conditions, such as the location of the focus or foci and the eccentricity.

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 55% (chapter tests are 35% 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 60-69% results in a D, 59% or below results in an F. 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. 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 Thomas' Calculus Early Transcendentals, 13th Edition, by Thomas, Weir, and Hass, Pearson, 2014.

A scientific calculator is needed for this course. A graphing calculator is encouraged.

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	Topic
1	Calculus 1 Review
2	6.3 Arc Length 6.4 Areas of Surfaces of Revolution
3	6.6a Moments and Center of Mass 6.6b Theorem of Pappus
4	Ch. 6 Test Center of Mass Project
5	8.1 Techniques of Integration
6	8.2 Integration by Parts
7	8.3 Trigonometric Integrals
8	8.4 Trigonometric Substitutions
9	8.5 Integration of Rational Functions by Partial Fractions
10	8.6 Integral Tables and Computer Algebra Systems

11	8.7 Numerical Integration
12	8.8 Improper Integrals
13	Ch. 8 Test 9.1 Solutions, Slope Fields, and Euler's Method
14	9.2 First Order Linear Equations
15	9.3 Applications of Differential Equations
16	Ch. 9 Test 10.1 Sequences
17	10.2 Infinite Series
18	10.3 The Integral Test
19	10.4 Comparison Test
20	10.5 Absolute Convergence; The Ratio and Roots Test
21	10.6 Alternating Series and Conditional Convergence
22	10.7 Power Series
23	10.8 Taylor and Maclaurin Series
24	Ch. 10 Test 11.1 Parametrizations of Plane Curves
25	11.2 Calculus with Parametric Curves
26	11.3 Polar Coordinates
27	11.4 Graphing Polar Coordinate Equations
28	11.5 Areas and Lengths in Polar Coordinates
29	Ch. 11 Test
30	Calculus 2 Exam

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.

Affidavit of Syllabus as Contract

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Student	Parent