



Fall and Spring 2017-2018

Mathematics

Calculus 1

170

Robert McDougall

Office: room 108 7:45-3:25 M-Th

robertmcdougall@visioncsd.org

Students and Instructors are accountable for all information on the Course Syllabus, as well as the Institutional Syllabus Addendum, which is located on the Blackboard Site for this course. For further information regarding Library resources, accommodations, and more, please refer to the addendum on Bb.

Instructor Availability

- Office hours Monday –Thursday 7:45-3:25
- Emails will be returned during the day they are received or the next school day depending upon receipt.
- Appointments are available upon request.

Course Description

This is the first course in the calculus sequence. It covers algebraic and transcendental functions, rate of change, limits, continuity, differentiation of algebraic, trig, exponential, logarithmic, and hyperbolic functions, differentials, applications of differentiation, definite and indefinite integrals, area between curves, volumes, and other applications of integration, indeterminate forms, and L'Hôpital's rule.

PREREQ: MATH 147 or its equivalent with a minimum grade of C or PERM/INST. (This CWI course meets Idaho State Board GEM competency requirements in GEM 3 - Mathematical Ways of Knowing.)

General Education Competency Area (This section is required for General Education Courses)

This course fulfills the Idaho State General Education competency area of:

Calculus

AND/OR

This course meets a CWI Institutionally Designated Core competency area of (CWID or Global Perspectives)

Academic Affairs Objectives:

This section is required for all classes. Please check appropriate boxes for your course, as outlined by your department:

- ✓ **Learn to Learn.** Students learn that as important as content knowledge is, shaping one's future requires the development of skill in discerning, applying, analyzing, synthesizing and evaluating knowledge in diverse contexts. The educational experience at CWI prepares students for a world in which they are likely to change occupations and face unpredictable life events. We strive to develop courses and learning experiences that give students the tools to confidently thrive in a complex, information-saturated, diverse, and dynamic world.

- ✓ **Make Connections.** Students learn success in today's interconnected world requires deliberate engagement and comfort with multiple perspectives, cultures, and contexts. In navigating difference and diversity in the natural and social worlds, students connect ideas, forms of knowledge, and practices to create a richer understanding of themselves as personally and socially responsible citizens.
- ✓ **Solve Problems.** Students identify problems, analyze and implement solutions, and interpret and reflect on outcomes to develop skills to individually and collaboratively face challenges and create opportunities.
- ✓ **Reason Ethically.** Students learn that ethical ideas and moral conduct may be understood from many perspectives: as products of historical, cultural, and religious forces, as reflections of human nature, and as personally held attitudes and beliefs. Students learn to articulate ethical self-awareness, ethical issue recognition, and varieties of ethical perspectives to evaluate, create, and live consciously according to their own personal moral values.

Course Schedule

- Tuesday, Thursday and alternating Friday from 8:13-9:49 am.
- Vision Charter School room 108
- Year Long

Course Objectives and Outcomes

1. Students will calculate the average rate of change of a function, calculate limits, and find all points where a function is discontinuous.
2. Students will calculate derivatives using the Product, Quotient and Chain Rules involving rational functions, exponential functions, trigonometric functions, and logarithmic functions, and will calculate the differential of a function.
3. Students will find absolute extrema, find the value that satisfies the conclusion to the Mean Value Theorem, use L'Hopital's Rule to evaluate a limit, and solve an applied optimization problem.
4. Students will use a finite approximation to estimate the area under the graph of a given function, evaluate a definite integral, solve an initial value problem, and find the area between two curves.
5. Students will find the volume of a solid using the slicing method, find the volume of a solid generated by revolving a region about a given line, use the shell method to find volume, and use an integral to calculate the amount of work in an applied problem.
6. Students will evaluate an integral that yields a natural logarithm, solve a differential equation, find the derivative of a hyperbolic function, and find the derivative of an inverse hyperbolic function.
7. Students will display retention of curriculum.

Outcomes Assessment

Daily assessments will be given to the students to determine understanding of the lesson. Exams will be given after each unit with and final exam.

1. Final Exam – Questions #1-4 (To successfully meet the standard, a student must earn at least 70% on a short-answer question or 100% on a multiple-choice question for at least 3 questions out of 4.)
2. Final Exam – Questions #5-8 (To successfully meet the standard, a student must earn at least 70% on a short-answer question or 100% on a multiple-choice question for at least 3 questions out of 4.)
3. Final Exam – Questions #9-12 (To successfully meet the standard, a student must earn at least 70% on a short-answer question or 100% on a multiple-choice question for at least 3 questions out of 4.)
4. Final Exam – Questions #13 -16 (To achieve the standard, the student must answer 3 out of 4 questions correctly.)

5. Final Exam – Questions #17-20 (To successfully meet the standard, a student must earn at least 70% on a short-answer question or 100% on a multiple-choice question for at least 3 questions out of 4.)
6. Final Exam – Questions #21-24 (To successfully meet the standard, a student must earn at least 70% on a short-answer question or 100% on a multiple-choice question for at least 3 questions out of 4.)
7. Minimum grade of 60% on final exam (average of both parts of final exam)

Grading Policy

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Percentage	Letter Grade
100-90	A
89-80	B
79-70	C
69-60	D
59-0	F

- Point Distribution:
 - Homework/Quizzes 15%
 - Tests 60%
 - Semester Exam 25%
- Methods used to evaluate student performance (required assignments, quizzes, group work, participation, presentations, exams, etc.)

Textbooks and Required Materials

Thomas/Weir/Hass, Thomas' Calculus Early Transcendentals, 13th edition, Pearson Education, 2014, 978-0-321-88407-7

The required materials for each class are pencils, pens, scientific calculator, textbook and core binder or another method for note taking.

Course Calendar

September 14 unit 1 test
 October 19 unit 2 test
 November 16 unit 3 test
 December 15 unit 4 test
 January 25 unit 5 test
 February 15 unit 6 test
 March 7 unit 7 test
 April 20 unit 8 test
 May 10 Course final

Calendar is subject to change.

Course Expectations

- Each student is expected to spend time outside of the class to prepare themselves for the rigors of a college course.

- Students are expected to complete homework on time. Late homework assignments will not be accepted for credit. Students with excused absences will be given two extra days for each consecutive class missed. It is the student's responsibility to acquire all absent homework. Students with unexcused absences or absences due to field trips or other extracurricular activities must turn in all assigned work before leaving and will be responsible for that day's assignments.
- Complete end of course evaluations

Computer Proficiency Expectations:

Students in this course are expected to be proficient in the following areas: General computer use. The following resources are available as needed: Laptops are available in class.

Behavioral Expectations:

Every student has the right to a respectful learning environment. In order to provide this right to all students, students must take individual responsibility to conduct themselves in a mature and appropriate manner and will be held accountable for their behavior. Students who disrupt the class or behave inappropriately or disrespectfully, as determined by the instructor, may be asked to leave the classroom.

If conduct continues to be an issue, students may be referred to Student Conduct for judicial action. It is the student's responsibility to check their email to receive notification of any scheduled appointments or other urgent communications.

Any student who has witnessed or experienced a violation of the student code may contact Student Conduct at 562-2305, or email: conduct@cwidaho.cc

Academic Honesty:

All work submitted by a student must represent his or her own ideas, concepts, and current understanding.

All material found during research must be correctly documented to avoid plagiarism. Cheating or plagiarism in any form is unacceptable and violations may result in disciplinary action ranging from failure of the assignment to failure of the course. Repeated acts of academic dishonesty may have more severe institutional ramifications. The consequences for cheating in this class are listed below:

- The student will receive a failing grade for the assignment. [You may include your own consequences here]

Emergency Procedures

Emergency procedures are posted next to the door leading outside or will be broadcasted over the public announcement