

Multivariable Calculus
Wall High School
2023-2024

Kristy Buttler - kbuttler@wallpublicschools.org

Room: C-13

Extra Help Schedule : My office hours are every first B day unit lunch in room C-13.

- Don't be afraid to ask for help. In my experience, seeking help as soon as you feel you need clarification is the best way to remain successful in class.
- Feel free to ask as many questions as you need and seek as much practice on skills as you would like. Learning requires active participation and I am here to help facilitate that endeavor.
- My door is always open, so even if it is not my extra help hours, feel free to stop in and ask your questions. The only thing I ask is that you come prepared with questions and skills you would like to review.
- If you are working at home and have a question, feel free to email me the question. I aim to be as responsive as I possibly can to email and I can address your question as soon as possible.
- Please do not wait until the day before an assessment to come to extra help. A unit can be over four weeks so to think we can cover it all in one day is not realistic.
- Upon being absent, it is your responsibility to determine if you need help with the material you missed. If you do need assistance then please come to extra help only after you have obtained all materials missed and tried to read through them and understand the information first. The time allotted for extra help does not allow me to reteach the lessons in its entirety.
- Take a deep breath and always know I am here to help you be successful.

Marking Period Schedule

Marking Period 1 9/6/2023 - 11/7/2023	Marking Period 3 1/29/2024 - 3/28/2024
Marking Period 2 11/8/2023 - 1/19/2024	Marking Period 4 3/29/2024 - 6/6/2024
Midterm Exams 1/22/2024 - 1/26/2024	Final Exams 6/7/2024 - 6/14/2024

Course Description: Multi Variable calculus is designed to continue study in the field of calculus. It is intended for students who have completed courses equivalent to Calculus 1 & Calculus 2 and are now ready to extend the ideas they have learned and apply them to functions of more than one variable. The course will begin with a review of the concepts taught in Calculus 2 and then introduce the traditional material covered in a college-level Calculus 3 program. These topics will include lines and planes in 3-space, vectors, functions of several variables, partial derivatives, multiple integrals, line integrals, and vector analysis. These topics will be especially valuable to students who plan on continuing their studies in mathematics, engineering, physics, or computer science.

Units of Study:

Unit 1- *A brief review of differential Calculus*

Unit 2- *A brief review of integral Calculus*

Unit 3- *Vectors and Three Dimensional Space*

Unit 4- *Vector Functions*

Unit 5- *Functions of Several Variables and Partial derivatives*

Unit 6- *Multiple Integrals*

Unit 7- *Matrices and Systems of Equations*

Classroom Expectations:

All students will be expected to show respect at all times to the teacher, peers, and the classroom environment. If necessary, disciplinary action will be taken if a student shows disrespect to any of the above mentioned.

Classroom Rules:

- 1) Be respectful!
- 2) Be prepared!
- 3) Be seated when the bell rings and working throughout class!
- 4) Follow directions!
- 5) Do your own work and try your best!

Cell phones will not be permitted in the classroom.

Materials & Available Resources

Materials Required: Technological Device (Charged and Working), Binder and/or Notebook, Graph Paper or Graphing Notebook, Pencils & Erasers

Resources Available: Calculus Text, teacher provided hadouts/notes, Math IXL, Delta Math, Desmos, Khan Academy

- **To be successful in this class, organized and clear notes help!**

Grading Breakdown

Each quarter grade is based on a percentage model; the following grading formulas have been established.

Marking Period Category Percentages

Category	Minimum Number	Percentage
Major	2	40%
Minor	6	40%
Homework/Classwork	10	20%

Course Grading

Category	Percentage
Marking Period 1	20%
Marking Period 2	20%
Midterm Exam	10%
Marking Period 3	20%
Marking Period 4	20%
Final Exam	10%

**** Seniors can be exempt from final exam if they meet the exemption requirements in handbook. ****

Assessment

- At the end of each unit, there will be a unit assessment. These assessments are major assessments and count anywhere from 16-25% of your marking period grade.
- Throughout a unit, there will be quizzes. Quizzes may be announced or unannounced. These assessments are minor assessments and count from 5-12%
- Multiple choice questions will be on each assessment and there is no partial credit given for these types of questions. Free-response or short answer will have a partial credit assigned to them. The format that will be used is both calculator/non calculator.
- Unless you have a 504 or IEP accommodation, there is no extended time for assessments.
- **To be successful in this class, you must prepare prior to and perform well on assessments!**

Homework

- Homework will be assigned daily.
- Homework is checked everyday.
 - 5 points for complete with maximal effort shown
 - 2.5 point for partially completed with fair effort shown
 - 0 points for incomplete homework
- Homework is to be placed on the upper left corner of your desk upon entry to class.
- Late Homework is **not** accepted unless you have a 504 or IEP accommodation or extenuating circumstance.
- Homework missed due to absence must be made up within the week of absence and shown to me for credit. It is your responsibility to show me your completed assignment.
- **To be successful in this class, doing homework is a must!**

Classwork

- Classwork is assigned daily and checked everyday. Classwork means completing notes and any assigned practice problems. As long as you are on task you will receive full points.
- **To be successful in this class, you need to be actively participating in instruction and learning opportunities!**

Marking Period 1*

Big Ideas	Topics/Themes/Concepts	Activities & Assessments	Timeline (Number of Blocks)
Derivatives	-Rules of Differentiation -Tangent Lines and instantaneous rate of change - Position, Velocity, Acceleration	Jig Saw Mixed Review Quiz	4 September 8-18
Applications of Derivatives	-Related Rates -Optimization	-Class notes -Assigned Problem set from Text -Quiz	3 Sept 22-Sept 27
Hyperbolic Trigonometric Functions	-Define hyperbolic trigonometric functions - Differentiate hyperbolic trigonometric functions.	-Class notes -Assigned Problem set from Text -Quiz	2.5 Sept 29- Oct 3
Unit 1 Assessment	Review all unit 1 skills	Mixed Review Unit 1 Assessment	1 Oct 3 - Oct 5
Integrals	-Rules of anti-differentiation -Net Area and Riemann Sums - - Position, Velocity, Acceleration	Jig Saw Mixed Review Quiz	3 Oct 5-16
Advanced Techniques of Integration	-Pattern Recognition -Integration by Parts - Partial Fraction Decomposition	-Class notes -Assigned Problem set from Text -Quiz	3 Oct 18-Oct 24
Advanced Techniques of Integration with Trigonometry	-Powers of Sine and Cosine - Trigonometric Substitution - Hyperbolic Trigonometric function integration Rules Inverse Trigonometric Rules	-Class notes -Assigned Problem set from Text -Quiz	4 Oct 26-Nov 3
Unit 2 Assessment	Review all unit 2 skills	Mixed Review Unit 2 Assessment	1 Nov 3 - Nov 7

**Subject to revision*

Make-up Work as per Student Handbook

- Students who are absent from class for any reason will be required to make-up the work missed in each class. Completion of this work should take approximately the same amount of time as the student missed from class. In extreme cases of prolonged absence, (more than five consecutive days,) the Principal may grant extra time for the students to complete missing assignments. Students will receive an incomplete grade pending the submission of the missing assignments. Students will receive a zero for any work that is not completed by the designated timeline.
- It is the student's responsibility to obtain all make-up work from his/her teachers immediately upon return to school. Failure to obtain makeup work is no excuse for not completing work missed. Students have the same amount of time that they have been absent to make up the work.

Academic Integrity Policy as per Student Handbook

Plagiarism Policy

- **Freshmen:** On the first offense, the student may rewrite for a maximum grade of 55. The rewrite should be closely monitored by the teacher because on the freshmen level we are concerned with students' understanding of the process. On the second offense, the student receives a 0 grade for the final product. (Students' offenses will be filed in the supervisor's office.)
- **Sophomores, Juniors and Seniors:** If the teacher finds that the plagiarism is flagrant or pervasive and can document the same, the assessment may receive a grade of zero.

Cheating

Students are expected to conduct themselves honestly and with integrity in their work. All forms of cheating and plagiarism are prohibited. Behavior that is unacceptable includes, but is not limited to the following:

- Copying another student's work;
- Working with others on projects that are meant to be done individually;
- Looking at or copying another student's test or quiz answers;
- Allowing another student to look at or copy answers from one's test or quiz;
- Using any other method (ie "cheat sheets", communicating in any form) to get/give test or quiz answers;
- Taking a test or quiz in part or in whole to use or to give to others;
- Copying information from a source without giving proper acknowledgment;

- Taking papers from other students, publications, or internet sources and claiming it as one's own work;
- Academic dishonesty in any other form including, but not limited to, tampering with computerized grade records;
- Giving or receiving answers and/or test questions to or from another student.

Violators of this policy will be disciplined on a case-by-case basis, depending on the seriousness of the violation, prior violations and other factors.

Disciplinary measures/consequences may include, but are not limited to the following:

- Redoing the assignment (see policy on plagiarism);
- Receiving a zero grade on the project, test or quiz;
- Letter sent to parent and placed in the student's file;
- Detention, suspension or expulsion.