Calculus with Analytic Geometry I, MTH 131-001
Spring 2020
Sugar Grove, BDE 105
TTh 12:30pm-2:10pm

Instructor

Name: Steve Kifowit (Pronouns: He/Him/His)
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Website: http://stevekifowit.com
Office Location: Sugar Grove, BDE 249

Office Hours:
Sugar Grove Campus, BDE 249, MW 9:30am-11am, TTh 2:15pm-3:15pm

Course Materials

Required Materials	Cost
Text (ebook): OpenStax Calculus--Volume 1, Strang & Herman	$0
Calculator: TI-83/84 Graphing Calculator	About $100

Optional Materials	Cost
Printed textbook: OpenStax Calculus--Volume 1, Strang & Herman	About $33

Disclaimer

This course syllabus and schedule are subject to change. Updates and other revisions to course policies will be communicated in class, on the class website, in Blackboard, and/or via college (waubonsee.edu) email.

Course Description

This first course in calculus presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials and an introduction to integration. The techniques of calculus will be used to analyze functions and their graphs, solve real-world applications, develop computational and numerical methods, and analyze the relationship between differentiation and integration using the Fundamental Theorem of Calculus.

Important Course Notes

Prerequisite: C or better in MTH 111 and 112; or C or better in MTH 129 (Precalculus I) and MTH 130 (Precalculus II); or C or better in MTH 130 and required placement score; or placement by appropriate measures.
Recommended Corequisite: None
Course Delivery Mode: Face-to-face
Course IAI Code: M1 900-1, MTH 901
Credit Hours: 4.0

Course Objectives

Throughout this course, the student will learn to:
1.) state and use the epsilon-delta definition of the limit;
2.) apply the concept of continuity, including the Intermediate Value Theorem;
3.) use the definition of the derivative and interpret the derivative as both an instantaneous rate of change and as the slope of the tangent line to a function at a point;
4.) differentiate functions using the rules for differentiation: power, product, quotient, and chain rules;
5.) differentiate exponential, logarithmic, and trigonometric functions;
6.) locate extreme values, points of inflection, and asymptotes of graphs of functions;
7.) find and apply higher-order derivatives and understand how they relate to the graph of a function;
8.) solve applied optimization problems;
9.) use implicit differentiation and solve related rates problems;
10.) apply Newton's Method;
11.) apply Rolle's Theorem and the Mean Value Theorem; and
12.) state and use the Fundamental Theorem of Calculus

Course Outcomes

Upon successful completion of this course, the student will be able to:
1.) apply techniques of calculus to analyze functions and their graphs;
2.) solve real-world problems using differential calculus;
3.) apply the Fundamental Theorem of Calculus to analyze the relationship between differentiation and integration; and
4.) attain computational facility in integral calculus.

College Learning Outcomes

This course contributes to the following college learning outcomes:

☑ Critical Thinking

Examine information in order to purpose or develop solutions or construct arguments.

☐ Communication

Use clear language to communicate meaning appropriate to various contexts and audiences.

☑ Quantitative Literacy

Make judgments or draw appropriate conclusions based on the quantitative analysis of data.

☐ Global Awareness

Describe the interconnectedness of issues, trends or systems using diverse perspectives.

☐ Information Literacy

Use technology to ethically research, evaluate or create information.

Course Grade Calculation

Total Points: 500 points

Grading Components	Score	Quantity	Subtotal	Percent
Tests	100	3	300 points	60%
Quizzes and homework	10	10	100 points	20%
Comprehensive Final Exam	100	1	100 points	20%

Grading Scale

A --- 90% and above
B --- 80% - 89%
C --- 70% - 79%
D --- 60% - 69%
F --- below 60%

You may estimate your current grade at any time during the semester by computing the following percentage: 100% * (Total points accumulated) / (Total points possible). Please feel free to discuss your grade at any time during the semester. **Final percentages will be rounded to the nearest whole number.** Throughout the semester, grades will be posted online in Blackboard.

Attendance, late work, and make-up policy

Regular class attendance is an essential component of successful learning. Students are responsible for prompt attendance and participation in all class meetings. If you miss class, you will not be allowed to make up any tests, quizzes, or assignments that you may have missed (**but you may reschedule a test or quiz, or submit an assignment, in advance of a missed class period**). All material covered in class is the student's responsibility.

Withdrawal

Waubonsee Community College reserves the right to administratively withdraw students who are not actively attending. Students may withdraw themselves from this course up through April 27. Visit the Tuition Refunds page of the WCC website for more details.

Homework

Suggested homework problems will be assigned daily and posted to the class website. Most of these will not be collected for grading, but they should be considered mandatory. On five Tuesdays during the semester (see course schedule), a subset of ten (10) suggested problems will be announced for submission on the following Thursday. These assignments will be posted on the class website.

Each collected homework assignment is worth a possible 10 points. At the end of the semester, a combination of only your top ten (10) homework assignments and quizzes will count toward your overall grade.

Quizzes

Be prepared for a10-point, in-class quiz on Thursdays, according to the course schedule. No make-up quizzes will be given. Quizzes may have take-home portions. At the end of the semester, a combination of only your top ten (10) homework assignments and quizzes will count toward your overall grade..

Tests

Test problems will be similar to class examples, textbook problems, and quiz problems. In addition to computational problems, tests may include multiple choice, true/false, short answer, and/or writing problems. You must show all work (showing how you got your answer) on all tests to receive full credit. **You must work individually on all tests.** No make-up tests will be given (unless scheduled prior to the test). At the end of the semester, your lowest test score will be replaced by your final exam score (if this helps you).

Final Exam

The final exam is comprehensive and will be worth 100 points toward your final grade. The final exam counts for 20% of your grade. Please take it seriously. The final exam is scheduled for our last class period.

Calculators

The TI-83/84 graphing calculator is required for this course. There are graphing calculator emulators available for smart phones and tablets--you may you these during class periods, but not during tests.

Phones/Tablets/Laptops

Electronic devices may be used for taking notes and computing during lectures, but they may not be used on in-class tests. These devices must be silenced and put away during tests. Students in special circumstances who require their phones to be readily available must discuss their situations with the instructor.

Important Institutional Policies

Diversity and Disability Statement

Accessibility is a value of our institution. We are committed to creating environments that are welcoming and that support all students' learning. If you experience barriers to your learning in this course please notify the instructor as soon as possible to discuss options. Students who experience barriers due to disability may contact the Access Center for Disability Resources to begin this conversation or establish accommodations.

Academic Integrity

Waubonsee Community College believes that all members of the community (students, faculty, staff, and administrators) have a responsibility to participate in learning with honesty, respect, and integrity. We must commit to engage in learning both in and out of the classroom, value each member in our learning community, demonstrate original thought, and help foster ethical, open, safe learning environments for all. For more information, please see the Waubonsee Community College Plagiarism Statement section in the Student Handbook.

Cheating/Plagiarism Policy

Waubonsee firmly upholds sound principles of academic integrity and responsibility. Plagiarism and cheating are serious infractions of academic integrity, and, as such, are considered breaches of the Code of Student Conduct. If a student has violated this policy, I will report the infraction to the Dean for Student Success and Retention and the student may fail the assignment or the course, depending on the severity or the number of infractions.

*** Please see the Student Handbook for other course policies and procedures.

Resource Links

The following are useful resources that are available to students at Waubonsee Community College:

- Access Center for Disability Resources
- Bursar
- Campus Police and Authority
- Career Development Center
- Counseling, Advising and Transfer Center
- Financial Aid and Scholarships
- Learning Assessment and Testing Services
- Library
- Online Support for Students
- Registration and Records
- TRIO/Student Support Services
- Tutoring Centers

Class Website

Course information, including tests, quizzes, answer keys and homework problems, can be found on the class website at http://stevekifowit.com/classes/m131.htm.

Grades will be posted in Blackboard. All other course information will be available on the class website.

Course Schedule

Week (Dates)	Sections	Topics
Week 1: 1/21 & 1/23	Course Information, Review, Section 2.2	Intro to limits (Quiz on 1/23)
Week 2: 1/28 & 1/30	Sections 2.2 & 2.3	Limits and limit laws (Quiz on 1/30)
Week 3: 2/4 & 2/6	Sections 2.4 & 2.5	Continuity, Formal definition of limit (HW due 2/6)
Week 4: 2/11 & 2/13	Sections 3.1, 3.2, & 3.3	Derivatives, Basic differentiation rules (HW due 2/13)
Week 5: 2/18 & 2/20	Section 3.4, **Test 1**	Rates of change, Test 1 covers sections 2.2-3.3.
Week 6: 2/25 & 2/27	Sections 3.5, 3.6, & 3.8	Derivatives of trig functions, Chain rule, Implicit differentiation (Quiz on 2/27)
Week 7: 3/3 & 3/5	Sections 3.7, 3.8, & 3.9	Derivatives of inverse, exponential, and logarithmic functions (HW due 3/5)
Week 8: 3/10 & 3/12	Review, **Test 2**	Test 2 covers sections 3.4-3.9.
Spring Break: 3/17 & 3/19	**No class**	
Week 9: 3/24 & 3/26	Sections 4.1, 4.2, & 4.3	Related rates, Linearizations, Extreme values (Quiz on 3/26)
Week 10: 3/31 & 4/2	Sections 4.4, 4.5, & 4.6	Mean Value Theorem, 1st & 2nd derivative tests, Limits at infinity (HW due 4/2)
Week 11: 4/7 & 4/9	Sections 4.7, 4.8, & 4.9	Optimization, L'Hopital's rule, Newton's method (Quiz on 4/9)
Week 12: 4/14 & 4/16	Section 4.10, **Test 3**	Antiderivatives, Test 3 covers sections 4.1-4.9.
Week 13: 4/21 & 4/23	Sections 5.1, 5.2, & 5.3	Area, Definite integrals, Fundamental Theorem of Calculus (Quiz on 4/23)
Week 14: 4/28 & 4/30	Sections 5.3, 5.4, & 5.5	Integration formulas, Substitution (HW due 4/30)
Week 15: 5/5 & 5/7	Sections 5.6 & 5.7	Integrals involving exponential, logarithmic, and inverse trig functions (Quiz on 5/7)
Week 16: 5/12 & 5/14	Review, **Final Exam**	Final exam is comprehensive with emphasis on course objectives.

April 27 is the last day for students to withdraw themselves. Please check the current Waubonsee Academic Calendar for other important dates.

Waubonsee Community College Campus Information:

Sugar Grove Campus
Route 47 at Waubonsee Drive
Sugar Grove, IL 60554-9454
(630) 466-7900

Aurora Downtown Campus
18 South River Street
Aurora, IL 60506-4178
(630) 801-7900

Aurora Fox Valley Campus
2060 Ogden Avenue
Aurora, IL 60504-7222
(630) 585-7900

Plano Campus
100 Waubonsee Drive
Plano, IL 60545-2276
(630) 552-7900