



Southwestern Illinois College

Course Syllabus

MATH 203 - 001 Analytic Geometry & Calculus I

Semester Spring 2026	Department Mathematics and Computer Science	
Course MATH 203	Section 001	Class Name Analytic Geometry & Calculus I

COLLEGE MISSION STATEMENT

Southwestern Illinois College upholds the dignity and worth of students, employees and community, which empowers learning and enhances the quality of life.

IMPORTANT COLLEGE POLICIES AND INFORMATION

The following referenced information is made part of this syllabus to the same extent as if bound herein. It is the student's responsibility to review all general information and College Policies using the links below:

COLLEGE POLICIES AND INFORMATION: [HTTPS://SWIC.EDU/ACADEMICS/COLLEGE-POLICIES](https://swic.edu/academics/college-policies)

ADDITIONAL STUDENT REFERENCES: [HTTPS://WWW.SWIC.EDU/STUDENTS/SERVICES/SUPPORT-SERVICES](https://www.swic.edu/students/services/support-services)

COURSE INFORMATION

INSTRUCTOR	Manche, Jaime Dr. Jaime Manche (she/her/hers)		
CLASS TIME & ROOM NUMBER	Class Day and Time: 9:00 – 9:50 MTWTHF Room Number: BC – MC 2004		
SEMESTER HOUR UNITS	Lecture Hours 5	Lab/Clinical Hours 0	Credit Hours 5
START AND END DATES	Start Date: Monday, January 12, 2026 End Date: Wednesday, May 13, 2026		
LAST DATE TO WITHDRAW	In order to receive a W grade for this class, you will need to withdraw from the class by the Last Date to Withdraw: Friday, April 3, 2026		
CLASS LOCATION	BLVL		
OFFICE PHONE	618-641-5795		
TOLL FREE IN ILLINOIS	1-866-942-SWIC(7942)		
OFFICE HOURS (STUDENT DROP-IN HOURS)	<i>Days</i>	<i>Hours</i>	<i>Location</i>
	Monday	1 pm – 1:50 pm	Virtual
	Tuesday	11 am – 12 pm	BC – MC 2045
	Wednesday	8:25 am – 8:55 am	BC – MC 2045

	<i>Days</i>	<i>Hours</i>	<i>Location</i>
	Thursday	11 am – 12 pm	BC – MC 2045
	Friday	11 am – 11:50 am	Virtual
OFFICE LOCATION	BC – MC 2045		
EMAIL	Jaime.Manche@swic.edu		
SWIC WEBSITE	WWW.SWIC.EDU HTTPS://SWIC.BRIGHTSPACE.COM		
ADDITIONAL WEBSITES (if applicable)	There are no additional websites for this course.		

COURSE DESCRIPTION

The calculus sequence is designed for students whose area of concentration is mathematics, science, or engineering. The SWIC Mathematics faculty believes calculus students must become aware of the advances in technology and its uses in mathematics, particularly in calculus. Therefore, computer technology is integrated in the calculus sequence through the use of the Mathematica software package. Students are also required to use graphing calculators, as recommended by the instructor, on some assignments and/or tests. It is recommended that any calculus sequence be completed in the college in which it was begun. However, if a student transfers during the sequence, the student is urged to discuss the calculus entry level with the math department of the transfer school. The MATH 203 course content includes limits of functions, derivatives, extrema of functions, tangents, asymptotes, definite and indefinite integrals, differentiation and integration of transcendental functions, and applications of calculus in physical science and engineering.

IAI NUMBER

M1 900-1; MTH 901

PREREQUISITES

Math placement above MATH 114 or completion of MATH 114 with a grade of "C" or better

COURSE OBJECTIVES

A. **Limits** The student will be able to:

1. Explain the concept of a limit.
2. Determine both graphically and algebraically when a limit does not exist.
3. Apply the basic properties of limits.
4. Evaluate limits of functions.
5. Explain the concept of a continuous function.
6. Show algebraically if a function is discontinuous.
7. State and utilize the Intermediate Value Theorem.
8. State the formal definition of a limit.
9. Prove the limit of a linear function.

B. **Derivatives** The student will be able to:

1. Determine the equation of a line tangent to a curve at a point (x, y) .
2. Connect the concepts of derivatives and instantaneous rate of change.
3. Explain the difference between average and instantaneous rate of change.
4. Write the limit definition of a derivative.
5. Use the definition to find derivatives of functions.
6. Apply the power rule, product rule, and quotient rules to determine derivatives.
7. Find the derivatives of trigonometric, inverse trigonometric, exponential, and logarithmic functions.
8. Apply the chain rule to determine derivatives.
9. Find higher order derivatives.
10. Determine the derivative of a function using logarithmic differentiation.
11. Use implicit differentiation to find the slope of a curve that is not a function.
12. Apply implicit differentiation to solve related rates problems.
13. Determine when Rolle's Theorem and the Mean Value Theorem can and cannot be applied.
14. Apply Rolle's Theorem and the Mean Value Theorem in both proofs and practical applications.

C. **Applications of Differentiation** The student will be able to:

1. Compute linear approximations and differentials of functions.
2. State L'Hôpital's Rule and find limits for indeterminate forms, including exponential, using L'Hôpital's Rule.
3. Find absolute/relative extrema on closed and open intervals.
4. Determine when a function is increasing/decreasing without graphing aids.
5. Determine the concavity of a function without graphing aids.
6. Sketch curves including extrema and points of inflection.
7. Apply the principles of Calculus to real situations and find optimal solutions.
8. Apply derivatives to determine how quantities fluctuate in various real-world applications.

D. **Integration** The student will be able to:

1. Write Riemann sums that approximate areas and write the integral that would represent the exact area.
2. Explain the concept of signed area.

3. Explain the basic properties of integration.
4. Explain the fundamental relationship between area and antiderivatives.
5. Explain the connection between integration and differentiation.
6. Apply the Fundamental Theorem of Calculus to solve problems.
7. Calculate the average value of a function and explain why this represents an average.
8. Integrate using the technique of substitution.

DISCIPLINE/PROGRAM OUTCOMES

The assessment of student learning is an integral part of the educational experience at SWIC. Assessment of student learning improves student success. The following are the overarching outcomes for the respective discipline/program.

Demonstrate proficiency in basic mathematical skills and computation as identified in the course objectives.

Infer logical conclusions about abstract mathematical concepts.

Apply mathematical concepts to authentic situations.

Use current technologies to investigate mathematical concepts.

Communicate mathematics.

COLLEGE-WIDE CORE COMPETENCIES

Students who complete a degree from SWIC will gain competency in skills related to communication, reasoning, and citizenship. Students will develop skills or be exposed to the following competencies, many of which include information literacy. In this class, core competency assessment with the checkmark(s) may occur:

Communication Skills	Reasoning Skills	Citizenship
1. Computer Literacy <input type="checkbox"/>	4. Critical Thinking <input type="checkbox"/>	6. Personal Accountability <input type="checkbox"/>
2. Oral Communications <input type="checkbox"/>	5. Quantitative Literacy <input type="checkbox"/>	7. Civic And Social Accountability <input type="checkbox"/>
3. Writing <input type="checkbox"/>		

TEXTBOOK(S)/COURSE MATERIALS

Required Materials:

Students are **required** to sign up for MyMathLab, which includes all necessary course materials.

Students desiring a physical textbook should also purchase:

Textbook – Calculus – Early Transcendentals, Briggs, Cochran, Gillett, Schulz, MyLab Revision, Version2 3rd edition, Pearson, 2019

Calculator – A graphing calculator is required. The TI-84 is **recommended** for this course. (You can check out a TI-84 from our success center or library.)

Important: See the **handout in the MyMathLab content area of Brightspace** for further information about how to access MyMathLab.

GRADING PROCEDURE

Grading Scale:

Below is the grading scale used for this course.

Percent Range	Letter Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Breakdown of Course Requirements:

COURSEWORK	<input checked="" type="radio"/> Percentage or <input type="radio"/> Points
Attendance & Participation	3
Group Work	7
MyMathLab Homework & Mathematica Labs	10
Tests (15% per test)	60
Final Exam	20
TOTAL	100

Coursework Comments:

Attendance & Participation – Attending class and participating in discussion is an important part of any math class.

- You are allowed **one absence** per testing unit. (SWIC excused absences will not be counted.)
- You are expected to **be on time for class**.
- You are expected to **stay awake during class** and to **not be on your phone**.
- You are expected to **come prepared to class, be ready to learn, and be engaged**.

Group Work – Group Work will usually be started in class unless we get behind in our course schedule.

- There will be **8 group work assignments** this semester.
- You should **bring your notes covered in class** and **be ready to work together (NOT COPY)** to complete problems.
- Your **lowest group work will be dropped** at the end of the semester.

MyMathLab Homework – Homework will be assigned in MyMathLab for every section of the textbook that we cover. All homework is available the first day of the semester and is due on the **designated dates in the course calendar at 11 pm**.

- Doing the **homework regularly** is key to success in any math class. This class is no exception.
- You have **unlimited attempts at each homework assignment** (meaning you can keep working the homework problems until you are satisfied with your grade).
- You may complete homework assignments after the due date but you will have a **20% penalty assigned for every problem completed after the due date**.
- The final due date for all homework is **May 10th at 11 pm**.

Mathematica Labs – There will be **3 lab assignments** this semester.

- Labs 1 and 2 will be completed in **BC – MC 2163** on the dates scheduled on your course calendar.
- Lab 3 will be completed as a **take home assignment** outside of class.

Tests – Tests will be taken in class. You are **required to be on campus** for your scheduled test day.

- There will be **4 tests** that you will take this semester that you will have **50 minutes** to complete.
- To prepare for the tests, you should **complete the test review posted in Brightspace, review your group work, and look over your notes covered in class**.

Final Exam – The final exam will be taken in class. You are **required to be on campus** for your scheduled final exam day.

- The final exam is **cumulative** (so it covers what we've learned the entire semester).
- You will have **1 hour 50 minutes** to complete the final exam.
- To prepare for the final exam, you should **complete the final exam review posted in Brightspace and review your tests**.

Late Work/Make-up Work – Below is the policy for late work and missed tests/assignments.

- All MyMathLab homework assignments are expected to be completed by their respective due dates (see the Course Calendar for due dates). Assignments not completed by the due date will have a **20% penalty assigned for every problem completed after the due date**.
- If a student misses a **scheduled in-class test/assignment**, the student must provide appropriate documentation of an excused absence. The student is wholly responsible for initiating the make-up process and should contact me **BEFORE the assessment**, if possible. **Once tests/assignments have been returned to the class, no make-ups will be given**. At the end of the semester, one missed in-class test score **may be replaced** with the final exam score. Any additional missed tests will be scored a 0.

Important: Do not expect any dropped assignments (other than what is stated above), replacement of a low test with the final exam, etc. at the end of the semester.

TENTATIVE COURSE SCHEDULE(COURSE OUTLINE IS SUBJECT TO CHANGE)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Jan 11	Jan 12 Syllabus/Handouts	Jan 13 2.1	Jan 14 2.1/2.2	Jan 15 2.2	Jan 16 2.3
Jan 18	Jan 19 MLK Day – No Class	Jan 20 2.3	Jan 21 2.4	Jan 22 2.4	Jan 23 Group Work 1
Jan 25	Jan 26 2.5	Jan 27 2.5	Jan 28 2.5/2.6	Jan 29 2.6	Jan 30 Lab 1 BC-MC 2163
Feb 1	Feb 2 2.6/2.7	Feb 3 2.7	Feb 4 Group Work 2 MML HW 2.5 & 2.6 Due	Feb 5 Review for Test 1	Feb 6 Test 1 2.1 – 2.7
Feb 8	Feb 9 3.1	Feb 10 3.1/3.2	Feb 11 3.2	Feb 12 Lincoln's B-day –	Feb 13 3.3
Feb 15	Feb 16 3.3/3.4	Feb 17 3.4	Feb 18 Group Work 3 MML HW 3.2 & 3.3 Due	Feb 19 3.5	Feb 20 3.5/3.6
Feb 22	Feb 23 3.6	Feb 24 3.6/3.7	Feb 25 3.7	Feb 26 Group Work 4	Feb 27 Lab 2 BC-MC 2163

Mar 1	Mar 2 Review for Test 2	Mar 3 Test 2 3.1 – 3.7	Mar 4 3.8	Mar 5 3.8	Mar 6 3.9
			MML HW 3.6 & 3.7 Due		
Mar 8	Mar 9 Spring Break – No Class	Mar 10 Spring Break – No Class	Mar 11 Spring Break – No Class	Mar 12 Spring Break – No Class	Mar 13 Spring Break – No Class
Mar 15	Mar 16 3.9	Mar 17 3.10	Mar 18 3.10	Mar 19 Group Work 5	Mar 20 3.11
			MML HW 3.8 & 3.9 Due		
Mar 22	Mar 23 3.11	Mar 24 4.1	Mar 25 4.1	Mar 26 4.2	Mar 27 4.3
			MML HW 3.10 & 3.11 Due		
Mar 29	Mar 30 4.3	Mar 31 Group Work 6	Apr 1 Review for Test 3	Apr 2 Test 3 3.8 – 3.11 & 4.1 – 4.3	Apr 3 Good Friday – No Class
			MML HW 4.1 & 4.2 Due		
Apr 5	Apr 6 4.4	Apr 7 *Lab 3 – Take Home*	Apr 8 4.5	Apr 9 4.5	Apr 10 4.6
			MML HW 4.3 & 4.4 Due		
Apr 12	Apr 13 Group Work 7	Apr 14 4.7	Apr 15 4.7	Apr 16 4.9	Apr 17 4.9/5.5
			MML HW 4.5 & 4.6 Due		

Apr 19	Apr 20 5.5	Apr 21 Group Work 8	Apr 22 5.1 MML HW 4.7 & 4.9 Due	Apr 23 Review for Test 4	Apr 24 Test 4 4.4 – 4.9 & 5.5
Apr 26	Apr 27 5.1	Apr 28 5.2	Apr 29 5.2/5.3 MML HW 5.5 & 5.1 Due	Apr 30 5.3	May 1 5.4
May 3	May 4 5.5	May 5 Review for Final Exam	May 6 Review for Final Exam	May 7 No Class MML HW 5.2 – 5.5 Due	May 8 Final Exam 9:30 – 11:20 am
May 10	Enjoy	Your	Summer	Break!!!	😊

OTHER PROGRAM/DISCIPLINE INFORMATION

ACADEMIC RIGOR

You are enrolled in an academically rigorous college course. Your success in this course will require a significant investment of time outside of the class. According to the Administrative Rules of the Illinois Community College Board (section 1501.309), it is assumed that the student will invest two hours of outside study time for each hour of classroom lecture time. This course is part of the Illinois Articulation Initiative (IAI). The IAI is based upon the assumption that community colleges and universities are equal partners in delivering lower-division baccalaureate courses. This course is considered equal in scope, quality, and rigor to comparable courses offered at other colleges and universities in Illinois.

STUDENT COUNSELING & WELLNESS

Taking care of your mental health matters! All SWIC students have access to confidential counseling provided by a licensed professional.

In-person and virtual appointments are available. For on-campus appointments, contact Ami Lilley-Plexico, LCSW at ami.lilleyplexico@swic.edu or 618.235.2700 ext. 5290. For virtual appointments, students can register by signing up at <https://www.TimelyCare.com/swic>. For more information, please contact Ami Lilley-Plexico.

ATTENDANCE POLICY

Students are to **be present and on time** for all scheduled class meetings. If the student is absent for more time than the class meets in a **two-week period** (prior to the withdrawal deadline), the student **may be dropped** from the class.

Note: A student who joins a class late will have accrued absences.

OTHER INFORMATION

Course Content – I plan on covering most of Chapters 2 – 5. I reserve the right to add or delete material as I see fit. I also reserve the right to change the way that the class is structured throughout the semester so that I may best help you learn the material.

Course Calendar – You will need to access this in Brightspace (or in this syllabus) so that you can see what work needs to be completed. **This schedule is very important!**

Official Communication – Your student e-mail account is the official method to communicate between you and your instructor. You are required to check and use your SWIC email during the semester. I will send emails (via your SWIC email account) and post announcements (in Brightspace) which will contain course materials and other information.

Contacting Your Instructor – During my office hours on Tuesday – Thursday, I am available to meet with students in my office. During my virtual office hours on Monday and Friday, I am available via email at Jaime.Manche@swic.edu. Outside of office hours, I am still available to meet with students in my office. Please email or talk to me to make an appointment. Furthermore, I am available outside of office hours by email, and I will reply within 24 hours. **Note that emails received on Friday after 1:00 pm or on the weekend may not receive a reply until the following Monday.**

ETHICAL CONDUCT – Academic Dishonesty – Academic misconduct includes, but is not limited to cheating, plagiarism and forgery, failure or refusal to follow clinical practice standards, and soliciting, aiding, abetting, concealing, or attempting such acts. Plagiarism is defined as the act of representing the work of another as one's own. Plagiarism may consist of copying, paraphrasing, or otherwise using written or oral work of another without proper acknowledgment of the source or presenting oral or written material prepared by another as one's own. Refer to the Student Handbook or College Catalog for more details. **If I catch you cheating, you will receive a 0 F on the test or assignment. This is also grounds for automatic removal from the class.**

Student Accessibility & Support Services (SASS) – Students who believe that they may need accommodations are encouraged to contact Student Accessibility & Support Services at 618-222-5368 or at Access@swic.edu to ensure that such accommodations are implemented in a timely fashion.

The Success Center – The Success Center offers both in-person tutoring and online tutoring. There is also after hours tutoring available through NetTutor.

Math Lab – The Success Center has partnered with the Math Department to create a space specifically for math help. The Math Lab is located on the Main Complex of the Belleville Campus in Room 2181. The following link contains the hours and more detailed information: <https://www.swic.edu/students/services/support-services/success-center/math-lab/>

Phones in Classroom – All cell phones and electronic devices should be turned off or silenced prior to entering the classroom. **There is absolutely no TEXTING or LISTENING to devices allowed in class!**