SCOTTSDALE COMMUNITY COLLEGE
A MARICOPA COMMUNITY COLLEGE

Scottsdale Community College (SCC) credits the diverse Indigenous people still connected to the land on which we gather. Our college resides on the tribal territory of the Salt River Pima-Maricopa Indian Community (SRP-MIC). SRP-MIC is a federally recognized nation - one of 22 Arizona Indigenous nations and one of 574 across the United States. Attached to this physical space is a painful history of forced removal and the resulting intentional genocide of its Indigenous people. We remain appreciative of our ability to teach, learn and serve in a space of such importance and reverence.

SCC acknowledges the land on which we are situated today as the traditional land and home, established by Executive Order on June 14, 1879, of two distinct tribal nations: the Onk Akimel O'odham (Pima) and the Xalychidom Piipaash (Maricopa) people. We take this opportunity to thank the original caretakers of this land. We offer our respect to their Elders and to all O'odham and Piipaash people of the past, present and future.

# Course Information

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|---|---|
| Semester & Year: | Spring 2023 |
| Course Title: | Calculus with Analytic Geometry II |
| Course Prefix & Number: | MAT 230 |
| Section Number: | 25197 |
| Credit Hours: | 5 |
| Start Date: | 1/30/2023 |
| End Date: | 5/12/2023 |
| Class Meeting Location: | CM 465 or Virtual Zoom Meeting Link |
| Zoom Meeting Info: | Meeting ID - 810 2272 6586 Passcode - 2023Maths2 |
| Meeting Days: | Monday and Wednesday |
| Meeting Times: | 9:30 AM – 11:55 AM |

# Course Format

This course has multiple attendance options for students to use. Students have the option of attending in-person meetings by coming to the class or the live-online virtual meetings through Zoom. The start date for the course is January 30th, 2023. The end date for the course is May 12th, 2023. The class is scheduled to meet from 9:30 AM to 11:55 AM regardless of mode of attendance. Meetings are not recorded. The link and information for attending virtually are given in the course information section of this syllabus.

Exams in this course must be taken in-person on campus at the time and date listed in the syllabus. There is no online option for exams.

# Instructor Information

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| Instructor: | Gabriel Tarr |
| Email: | gabriel.tarr@scottsdalecc.edu |
| Office Phone: | 480-425-6746 |
| Office Location: | CM 419 |
| Office Hours: | Monday: 3:30 PM – 4:45 PM (CM 419 or Zoom) |
| | Wednesday: 2:00 PM – 3:15 PM (CM 419 or Zoom) |
| | Tuesday and Thursday: 3:00 PM – 4:15 PM (Zoom) |

# Course Description

Techniques of integration for both proper and improper integrals with applications to the physical and social sciences, elements of analytic geometry, and the analysis of sequences and series.

# Prerequisites

A grade of C or better in MAT220 or MAT221 or equivalent.

# Course Competencies

1. Evaluate indefinite, definite, and improper integrals using various algebraic, trigonometric, and numerical techniques. (I, II)
2. Solve applied problems taken from the sciences using integration. (I, II)

3. Analyze curves in the plane described using parametric and polar equations. (III)
4. Define, classify, and analyze conic sections. (III)
5. Determine the convergence or divergence of sequences, series of constants, and power series. (IV, V)
6. Compute polynomial approximation and power series representation of elementary functions using derivatives and integrals. (V)
7. Compare alternate solution strategies, including technology. (I, II, III, IV, V)
8. Communicate process and results in written and verbal formats. (I, II, III, IV, V)
9. Justify and interpret solutions to application problems. (I, II, III, IV, V)

# Texts and Course Materials

**Required Texts**: Active Calculus (2018) by Boelkins, Austin, and Schlicker with ISBN: 978-1724366856. A digital copy of this textbook can be found on MOER for free. You may also purchase the hardcopy from Amazon if you wish, but a hardcopy text is not required.

**Online Course Management System**: This course uses MOER, an Online Course Management System developed by David Lippman and the State of Washington. All of the Online Homework will be accessed through this system. Grades will also be posted through this system. The software is free to use and can be accessed here at moer.maricopa.edu. Failure to enroll in MOER and complete the required syllabus quiz by the due date will result in being withdrawn from the course.

**Course ID**: **16279** **Enrollment Key**: **25197**

**Calculator Requirement**: A graphing calculator or graphing calculator app is required for this course. The instructor strongly recommends a TI-83/84. Calculators with QERTY keyboards or those that perform symbolic algebra (such as the TI-92/TI89) are not allowed. You are expected to bring your calculator to each class session. Your cell phone may NOT be used as a calculator on your exams. The SCC Media Center will rent calculators this semester on a first-come basis. Go to the Media Center located in the Information Technology (IT) Building to rent a graphing calculator. Rentals are first-come, first-served and there are limited quantities.

**Computer Access, Webcam, Microphone, and Email:** You will need regular access to a computer with online capabilities in order to complete online assignments. You will need access to a webcam and a microphone for attending class virtually or attending the optional virtual office hours through Zoom.

# Course Technologies

View the Accessibility Statements & Privacy Policies of technologies used in this course.

## Maricopa Systems

This course uses key Maricopa systems for course management and communication.

- Canvas Learning Management System
- Student Maricopa Gmail Account
- Maricopa Open Educational Resource Learning System (MOER)

## Synchronous Communication Tools

This course implements the use of web conferencing and/or other synchronous course tools.

- Zoom for virtually attending class and/or office hours

## Streaming Media/Audio/Video Tools

This course uses webcasting, lecture capture systems, YouTube, and/or other streaming media services.

- YouTube

## Student Assignment Tools

This course requires students to participate in or submit assignments using desktop or cloud-based applications.

- Google Products
- Microsoft Office 365
- Screencast-O-Matic
- Adobe Creative Cloud

# Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the Student Regulations page of the Maricopa Community College District website.

**Withdrawing from the Course**: If it becomes necessary to withdraw from the course, you should speak with admissions office and fill out the proper forms there. There is a last day to withdraw without an instructor's signature. It is not guaranteed that you will be able to withdraw from the course after this date.

**Math/Science Tutor Center**: Free online tutoring is available online at the following link. http://www.scottsdalecc.edu/students/tutoring/math. You will need to know your Maricopa gmail account ID and password, and self-enroll in a Canvas course. Details can be found at the link above.

**Email and Contacting the Instructor**: It is HIGHLY inappropriate for your family members, guardians, private tutors, former teachers, or any other third-party actors to contact your instructor to discuss anything related to your academic standing in this class. The instructor is more than happy to discuss your academic standing with YOU (the student), but emails, messages, and phone calls from third-party actors on your behalf will not receive a response (except in extreme circumstances as determined by the instructor). In certain cases, these third-party actors may be blocked from contacting the instructor.

Be respectful of your classmates and the instructor. Don't be a jerk!

# Grading Standards & Practices

**Exams (60% of the course):** Your exams are meant to test your PERSONAL mathematical aptitude of topics covered prior to each exam in this class, but occasionally you will be required to draw from your PERSONAL aptitude in topics covered in pre-requisite courses, your real-life experiences, and common sense.

There will be two exams in this course. A midterm and a final. The dates can be found at the end of this syllabus.

Make up exams will only be granted under extreme circumstances. You should meet with your instructor AT LEAST TWO WEEKS BEFORE THE SCHEDULED EXAM to discuss arrangements. This discussion must take place BEFORE the scheduled date of the exam. Failure to adhere to this policy may result in a 0 for the exam and withdrawal from the course.

**Homework (20% of course grade):** You will be expected to complete regular homework assignments using MOER. Assignments and due dates will be posted in MOER. It is to your benefit to keep up, however, if you miss a due date, you have 255 late passes that you are able to use with no penalty to your homework grade. Each late

pass only extends the due date for 24 hours, so that 255 goes quickly if you fall too far behind.

**Module Quizzes (15% of course grade):** A few days after the last homework of the module is due, you will need to complete a module quiz. You will have access to whatever resources you want, but each quiz is timed and you only have 60 minutes to complete the quizzes. You can try each problem multiple times, but there is a 30% penalty for each attempt after the first one.

**Participation (5% of course grade):** Participation is useful in determining how well students are comprehending the material. The more people participate in class and demonstrate how well they are working with the material, the easier students may find the exams to be.

In-Person Participation: Working problems at the board, explaining your solutions (not just giving answers) to the class (including Zoom students), asking questions of others' solutions, answering questions in class, collaborating with other students during class.

Live-Online Participation: Working problems in your notebook or using the zoom whiteboard as in-person students are at the boards, explaining your solutions (not just giving answers) to the class (including in-person students), answering questions in class, collaborating with other students in breakout rooms on Zoom, posting pictures of (or typing) your solutions on the MOER forums.

In addition, any student may engage in respectful discussion about how current scientific, social, political, or economic events relate to the content we have covered recently in class, or engage in respectful discussion about how something personal in their life relates to the content we have covered recently in class.

# Response Time

Students can expect a response time of up to 24 hours (though likely sooner) for the instructor to respond to messages sent via MOER or email. This 24-hour window does not include weekends, holidays, or official district breaks. Students can expect assignments to be graded within 3 class meetings of the assignment's due date.

# Attendance Policy

Any student who misses more than three (3) classes may be withdrawn from the course. You are responsible for learning any material covered during an absence or tardiness.

# Instructional Contact Hours (Seat Time)

This is a five (5) credit-hour course taught in 14 weeks. The typical student should plan to spend at least 17 hours per week on in-class direct instruction and out-of-class coursework (homework, studying, etc.). Some students may require more/less time per week depending on ability, aptitude, and content.

# Online Tutoring

SCC's tutors are available online to help with your courses. You may work with an SCC tutor remotely using Google Meet, your phone, or email. Visit the Tutoring & Learning Centers page for detailed information on the five learning center's hours and procedures.

# Learning Tools and Your Privacy and Security

SCC utilizes a variety of software applications and web-based tools operated by third party vendors to support student learning. To allow student access to the application, site or tool, certain identifiable information may be required to establish a user name or password, and submit work and/or download information from these tools. Inherent with all internet-based tools, there is a risk that individuals assume when electing to use these tools, as they may place information at risk of disclosure.

To use learning tools responsibly, please observe all laws and the Maricopa Community College District Student Conduct Code, such as copyright infringement, plagiarism, harassment or interference with the underlying technical code of the software. As a student using a learning tool, you have certain rights. Any original work that you produce belongs to you as a matter of copyright law. You also have a right to the privacy of your educational records. Your contributions to learning tools constitute an educational record. By using the tool, and not taking other options available to you in this course equivalent to this assignment that would not be posted publicly on the internet, you consent to the collaborative use of this material as well as to the disclosure of it in this course and potentially for the use of future courses.

# Tentative Course Schedule

| Date | Topic |
|---|---|
| Monday, January 30, 2023 | Methods of Integration - u-Substitution |
| Wednesday, February 1, 2023 | Methods of Integration - by Parts |
| Monday, February 6, 2023 | Methods of Integration - Trig Functions and Trig Substitution |
| Wednesday, February 8, 2023 | Methods of Integration - PFD, CAS, Tables of Integrals |
| Monday, February 13, 2023 | Methods of Integration - Numerical Integration |
| Wednesday, February 15, 2023 | Improper Integrals |
| **Monday, February 20, 2023** | **Academic Holiday - No Class Meeting** |
| Wednesday, February 22, 2023 | Differential Equations Introduction |
| Monday, February 27, 2023 | Differential Equations Introduction - Continued |
| Wednesday, March 1, 2023 | Differential Equations Application |
| **Monday, March 6, 2023** | **Midterm Exam** |
| Wednesday, March 8, 2023 | Conics |
| **Monday, March 13, 2023** | **Spring Break - No Class Meeting** |
| **Wednesday, March 15, 2023** | **Spring Break - No Class Meeting** |
| Monday, March 20, 2023 | Parametric Curves |
| Wednesday, March 22, 2023 | Calculus with Parametric Curves |
| Monday, March 27, 2023 | Polar Coordinates and Equations |
| Wednesday, March 29, 2023 | Area of 2-D Shapes and Length of 1-D Curves (6.1) |
| Monday, April 3, 2023 | Volumes of 3-D Solids (6.2) |
| Wednesday, April 5, 2023 | Applications - Density, Mass, Center of Mass (6.3) |
| Monday, April 10, 2023 | Applications - Work, Force, Pressure (6.4) |

| Date | Topic |
|---|---|
| Wednesday, April 12, 2023 | Sequences and Series Introduction (8.1) |
| Monday, April 17, 2023 | Geometric Series |
| Wednesday, April 19, 2023 | Series of Real Numbers (8.3) |
| Monday, April 24, 2023 | Alternating Series (8.4) |
| Wednesday, April 26, 2023 | Taylor Polynomials and Taylor Series (8.5) |
| Monday, May 1, 2023 | Taylor Polynomials and Taylor Series (8.5) |
| Wednesday, May 3, 2023 | Power Series (8.6) |
| Monday, May 8, 2023 | Power Series (8.6) |
| **Wednesday, May 10, 2023** | **Final Exam** |

Students are responsible for the information contained in this syllabus, the Syllabus page in your Canvas course and the **College Policies & Student Services** page found in the First Steps module of your Canvas course. Students will be notified by the instructor of any changes in course requirements or policies.