



MAT 187 Precalculus Credits: 5.00

90751/Full Year 2022-23

Crosslisted: MAT 187 Culturally Relevant (CR) Strand/90751

Course Meeting Days/Time*: Mondays, 9:05-10:50am; Wednesdays, 8:00-8:49am; Thursdays, 8:05-9:05am; Fridays, 8:05-9:05am (*subject to occasional modification based on district/school schedule adjustments)

Course Location: Rincon High School, Room 219

Course Start Date: August 4, 2022

Course End Date: May 19, 2023 (Seniors); May 25, 2023 (Juniors/Sophomores)

Course Delivery/Modality: Traditional, in person

Instructor Information

Instructor Name: Dr. Brenae Bailey (TUSD Facilitating Teacher Name: Ms. Jenna Mills)

Instructor Email: bbailey@math.arizona.edu

Office Hours: Dedicated instructor time to answer questions or provide student support. Office hours are by appointment (please contact instructor using the email above).

Additional Help: In addition to Office Hours with the instructor of record, the TUSD Facilitating Teacher is available on Mondays, 8:00-8:55am, during conference period.

Course Coordinator: This course is based on University of Arizona-designed curriculum focused in Tucson and the Southwestern US as place and identity; Dr. Guadalupe Lozano (guada@math.arizona.edu, 520-621-1562) serves as course coordinator.

Course Information

Course Description: College-level algebra and trigonometry. Includes functions, polynomial functions, rational functions, exponential functions, logarithmic functions, trigonometric functions and identities and graphing technology use.

For more information please visit [Pima Community College's courses page](http://www.pima.edu/academics-programs/courses): (www.pima.edu/academics-programs/courses)

This CR Strand emphasizes models of change, sense-making and problem-solving, centering Tucson and the Southwestern US through an asset-based lens.

Prerequisite(s): Required score on the Mathematics assessment test, or (for Pima Community College Students) a grade of C or better in MAT 095 or MAT 097 within the last three years. Rising high school seniors may also meet the prerequisite through multiple measures—as determined

by the school/school counselor.

Recommendation: This course is intended as an intensive preparation for students who intend to take college-level Calculus. This course is also intended to prepare students for the transition from high school to college by focusing on problem-solving, critical-thinking within a rigorous, culturally-responsive curriculum.

Course Credit: If a student takes or will be taking additional Pima Community College courses, please note: credit for only one course will be awarded to students completing MAT 151, MAT 187, MAT 188. No more than 7 credits may be applied toward graduation from the following list of courses: MAT 151, MAT 187, MAT 188, or MAT 189.

Expectation of coursework hours: For every hour in-class each student should plan to spend at least one hour outside of class studying each week.

Course Technology: Several web-based apps and websites will be used for this course; they are listed below.

- Pima Community College D2L Brightspace—for access to course materials, homework, and grades. For help on accessing D2L Brightspace, please see the links at the bottom of this section—this course is not a Pima Online course, but the links will still be useful.
- Functions Modeling Change, eBook—the online course textbook (see below)
- WileyPLUS—an online course-homework platform associated with the online textbook
- Top Hat—a poll-based answering system used for daily in-class work
- Flipgrid—a web-based app for creating video discussions/explanations
- Desmos, or other non-CAS (Computer Algebra System) graphing tool

Required Textbook: Functions Modeling Change: A Preparation for Calculus, 6th Edition (WileyPLUS + eBook format), by Eric Connally, Deborah Hughes Hallett, Andrew Gleason, et al., published by Wiley

D2L Brightspace Help: [Pima Online Student Guide](#) and [Brightspace Help](#)

Student Learning Outcomes

Course Learning Outcomes

1. Analyze functions by determining the domain, range, graph, zeros, asymptotes, and other properties.
2. Solve various types of equations, inequalities, and systems.
3. Solve problems involving real world applications.
4. Solve trigonometric equations and verify trigonometric identities.
5. Solve triangles and real world applications.

Additional Course Learning Goals

6. Practice problem-solving and critical thinking skills.
7. Leverage the Rule of Four, the exploration of concepts algebraically, numerically, graphically, and verbally.
8. Engage in precalculus learning through peer discussions, collaborative work and the use

of web-based programs and technology.

9. Understand functions as models of change through a focus on Tucson and the Southwest as place and identity.

Grade and Instructor Policies

Because this is a Pima Community College course, official grades will be kept and posted in the D2L Brightspace Gradebook. Official grades will also be reflected in the TUSD system. Students should check often that grades on the two systems agree.

Grade Determination and Grading Policies

Pima Course Grade/Credit: The Pima Course grade (MAT 187 grade) will be calculated based on 1000 total possible points for the year-long course. A grade of C or better is required to earn college credit. MAT 187 grades will be no lower than those set forth in the following scale:

1000-900 points	100% - 90%	A
899-800 points	89% - 80%	B
799-700 points	79% - 70%	C
699-600 points	69% - 60%	D
599-0 points	59% or less	F

High School Grades/Credit: Students can earn up to 0.5 credits for high school mathematics over the first semester of this course, and up to 0.5 credits over the second semester. A grade of D or better is required to earn high school credit each semester. The high school grade for first (Fall) semester, will be calculated out of 500 possible points possible over the Fall. Fall semester grades will be no lower than those set forth in the following scale:

500-450 points	100% - 90%	A
449-400 points	89% - 80%	B
399-350 points	79% - 70%	C
349-300 points	69% - 60%	D
299-0 points	59% or less	F

The high school grade over the second (Spring) semester of this course *will be identical to the Pima Course Grade for MAT 187* (calculated out of 1000 possible points over *the entire year*, based on the scale for the Pima course grade).

Withdrawal: Students must withdraw from the course by the withdrawal date (February 11, 2023; see Key Dates below) in order to receive a grade of "W". Students who remain enrolled in the course after the withdrawal date will receive the grade they earn.

Withdrawing from the course may affect TUSD eligibility for athletes. Students considering withdrawing should seek out their school's Athletic Director for more information.

Incomplete: A grade of "I" or "Incomplete" will be awarded at a student's request and at the instructor's option. A student must have completed 70% of the year-long course work

and be passing the class for an incomplete to be considered by the instructor. This grade will negatively impact the student's completion rate (tracked by the college). If no change of grade form is submitted within a year, the "I" will be automatically changed to a failing grade "F." (Incompletes are not included in GPA calculation.)

A grade of "I" may affect TUSD eligibility for athletes. Students considering requesting a grade of "I" should seek out their school's Athletic Director for more information.

Late Work Policy

In-class Top Hat and Team Assignments: Except possibly under exceptional circumstances, late work in these categories will not be accepted for credit. However, 10% of the assigned work in each of these categories (the lowest scoring work, including missed work) will be dropped and will not factor into course grades. Even if not accepted for credit, all missed work will be available to students who are absent, excused or unexcused.

WileyPLUS homework: Late work in this category is discouraged as it will make classwork more challenging. Work turned in within two days after its due date will be subject to a 20% score reduction. Work turned in three or more days after its due date will be subject to a 60% score reduction. In addition, 10% of the assigned WileyPLUS work (the lowest scoring work, including missed work) will be dropped and will not factor into course grades. Even if not accepted for credit, all missed work will be available to students who are absent, excused or unexcused.

Midterms and Final Exams: There will be no make-up exams in the course, and a missed exam will mean a grade of zero in that exam. In certain unusual circumstances which are beyond a student's control (such as bereavement, or official school competitions), special arrangements to address a missed exam may be considered on a case-by-case basis. Travel plans are not a valid excuse to miss a scheduled examination.

Course Schedule/Schedule of Work

Course grades will be based on in-class Top Hat work and participation, team assignments, WileyPLUS homework, and in-class exams (midterms and final exams).

In-class Top Hat work will be completed (hence due) daily during class time. Team assignments will be due weekly on Fridays. There will be about 10 team assignments each term. WileyPLUS homework will be due about three times weekly, and completed online. All exams will be completed during class time.

The weight of grade components is as below.

In-class Top Hat: 50 points (25 points each term)

Team Assignments: 100 points (50 points each term)

WileyPLUS homework (web-based): 150 points (75 points each term)

Midterms* (two in Fall, two in Spring): 400 points (100 points each)

Final exams (one in Fall, one in Spring): 300 points (150 points each)

*Students will have the option to retake one midterm (over the whole year). A retake means taking a different midterm on the same material within a specified time period.

Course Topics Schedule (Tentative)

Fall Semester, Weeks 1–8 (Aug 4 – Sep 23): Functions, function notation, rate of change; linear functions, formulas for linear functions, graphs and models for linear functions; inequalities; input and output, domain and range; piecewise functions; preview of shifts, composite and inverse functions concavity

Fall Semester, Weeks 9–14 (Sep 26 – Nov 10): Factoring and quadratics, family of quadratic functions, vertex of a parabola, complex zeroes and the fundamental theorem of algebra; family of exponential functions, graphs of exponential functions, comparing exponential and linear functions, compound interest and the number e

Fall Semester, Weeks 15–20 (Nov 14 – Dec 22): Idea of logarithms, logarithms and their properties, logarithms and exponential models, logarithmic functions and their applications

Spring Semester, Weeks 1–7 (Jan 9 – Feb 22): Review of transformations; periodic functions, the sine and cosine functions, the unit circle, reference angles, radians and arc length, graphs of the sine and cosine functions; sinusoidal functions, the tangent function, inverse trigonometric functions

Spring Semester, Weeks 8–13 (Feb 27 – Apr 14): Trigonometric functions and right triangles, solving for angles, solving trigonometric equations graphically and algebraically; non-right triangles, law of sines, law of cosines; identities, expressions and equations, double-angle formulas, sum and difference formulas for sine and cosine; inverses functions, combining functions

Spring Semester, Weeks 14–19* (Apr 17 – May 25*): Power functions, polynomial functions and behavior, zeros of polynomials and short-run behavior; division algorithm, remainder theorem; rational functions, short-run behavior of rational functions

*Seniors end on May 19, 2022; all other students end on May 25

Midterms and Final Exam Dates *

Midterm 1, Fall semester—September 22, 2022

Midterm 2, Fall semester—November 14, 2022

Final Exam 1, Fall semester—December 19, 2022

Midterm 3, Spring Semester—February 20, 2023

Midterm 4, Spring Semester—April 17, 2023

Final Exam 2, Spring Semester—May 18, 2023

*All exam dates are firm, barring district/school schedule adjustments. Please plan accordingly.

Attendance Requirements/Active Participation

Because students in this course are formally enrolled as Pima Community College students,

they should be familiar with the college's policies about attendance and participation. However, TUSD/school policies on attendance will apply.

Pima Community College [attendance requirements \(www.pima.edu/student-resources/student-policies-complaints/attendance.html\)](http://www.pima.edu/student-resources/student-policies-complaints/attendance.html)

Course-specific attendance and participation: Participation is expected daily in all class meeting and through the course end date. All students are expected to:

1. Come to class, and remain engaged and participating during class-time.
2. Be fully engaged in the mathematics, with your peers while in the classroom. This means put aside non-math conversations, texting, social media, and anything else that may make this time less mathematically productive for you and your peers.
3. Be ready and willing to participate in many different forms of interactive activities, including small-group discussion and explaining ideas to others.
4. Listen to your peers' arguments and the instructor's respectfully, attentively and critically. Be willing and ready to contribute whenever appropriate.
5. Be on time, ready to start when class is scheduled to start, and until class is dismissed.

Key Dates

This section lists Pima Community College deadlines for dropping a student from this course with no penalty, and withdrawing a student from the course, with a grade of "W." Grades of "W" appear in a student's transcripts.

- Deadline to drop a student from the course (no penalty): January 14, 2023
- Deadline to withdraw from the course (grade of "W"): February 11, 2023

Student Resources and Policies

Because students in this course are formally enrolled as Pima Community College students and are also TUSD students, both the college's policies and TUSD's policies apply. Pima Community College policies and resources appear below. In addition schools/TUSD resources may also be useful to students enrolled in this course.

Student resources: tutoring, libraries, computer commons, advising, code of conduct, complaint process. [Student resources \(www.pima.edu/student-resources\)](http://www.pima.edu/student-resources)

Student policies: plagiarism, use of copyright materials, financial aid benefits, ADA information, FERPA, and mandatory reporting laws at: [Policies \(www.pima.edu/syllabusresources\)](http://www.pima.edu/syllabusresources)

Concerns: Please try to resolve any class issue with your instructor first. You should contact the supervisor if your instructor is unable to resolve your issue to your satisfaction in a timely manner.

Other policies: [TUSD code of conduct \(www.tusd1.org/Information/Resources/Student-Guidelines\)](http://www.tusd1.org/Information/Resources/Student-Guidelines)

PimaConnect Student Network: We care about your success! The College has created individual student success networks in PimaConnect. The network is designed to promote student success through coordination and communication with instructors, student affairs professionals and students. To benefit from the success network concept, access the PimaConnect system, found in MyPima, under the Students – Academics tab. Please contact the Pima Department Head/Supervisor (email below) if you have any questions.

Department Head/Supervisor: Diane Lussier, dlussier@pima.edu

Access and Disability Resources (ADR)

Students who qualify for special accommodation, must request approval through Pima Community College. Students who already have a high school accommodation, must still request a new/separate accommodation through Pima Community College and receive approval through the college in order to that accommodation to apply to this course. Please see the information below to request approval through PCC, if appropriate.

Access and Disability Resources (ADR) can provide accommodations to students with qualifying medical/psychological conditions, disabilities, and pregnancy. For more [information on ADR:](http://www.pima.edu/adr) (www.pima.edu/adr)