# Math 0205:   Bridge to Calculus

## Syllabus

**Overview:** The goal of the course is to fill up the gap between courses Math 0120 Business Calculus and Math 0220 Calculus 1 to prepare a student for Math 0230 Calculus 2.

The course covers topics given in Calculus 1 and omitted in Business Calculus. Predominantly it is theory of trigonometric functions and their inverses as well as differentiation and integration of them purely and in a combination with basic functions.

Prerequisite for the course is Math 0120 Business Calculus.

**Course Objectives:** Students who complete Math 0205 will be able to:

- Understand the unit circle, angles and their measures.
- Demonstrate the ability to use trigonometric functions to find the parts of a right triangle and to solve problems involving right triangles.
- Identify the properties and graphs of main trigonometric functions.
- Find values of angles by using inverse trigonometric functions.
- Use basic trigonometric identities.
- To apply law of sines and law of cosines.
- To evaluate limits of expressions containing trigonometric functions.
- To differentiate expressions containing trigonometric functions and inverse trigonometric functions.
- To analyze graphs of functions containing trigonometric functions.
- To use linear approximation to estimate solutions of applied problems.
- To identify indeterminate forms and apply L'Hopital's Rule to evaluate limits.
- To integrate expressions containing trigonometric functions and/or inverse trigonometric functions or having them as a result of integration.
- To evaluate integrals by using trigonometric substitution technique.

**Textbook:**

There is no an official textbook and students will be provided with lecture notes and sets of practice problems with solutions.

Complementary recommended texts are

- Precalculus, A Prelude to Calculus, third edition, by Sheldon Axler
- Essential Calculus, Early Transcendentals, second edition, by James Stewart.

**Week Schedule:**

Monday: Read notes, watch video lecture, participate in online discussions, start doing practice problems.

Tuesday: Read notes second time, participate in online discussions, finish practice problems, start doing homework assignment.

Wednesday: Participate in online discussions, do homework assignment.

Thursday: Finish homework assignment by noon, take the week quiz at 2 pm.

Friday, Saturday, and Sunday are days off. There is no activity during these days although you are welcome to begin reading notes and start doing practice problems for the next week.

**Grades:** Your course grade will be determined as follows:

- Participation   10%
- Homework   35%
- Quizzes   30%
- Final exam   25%

**Exam policies:** The final exam will be given in a paper-based format proctored over Zoom on Thursday, August 4th. The exam time will be announced later.

**Homework policies:** Students are required to complete the homework problems; very few students can learn material without constant practice. Homework is given and has to be completed in the online system LonCapa. Homework assignments and their due dates will be posted there. Deadline extensions for assignments will not be given.

**Office hours:** There is one office hour every week on Thursday, 11:00 am - noon. Office hour is hold over Zoom by appointment only. If you want to see me during the scheduled office hour you still need to let me know about that in advance before 9:00 am on Thursday.

**Math Assistance Center:** The MAC is located in O'Hara Student Center and open for tutoring Monday through Friday, 10:00 am - 6:00 pm. More information is here:
http://www.mathematics.pitt.edu/undergraduate/math-assistance-centerposvar-computing-lab

**Academic Integrity:** The University of Pittsburgh Academic Integrity Code is available at Academic Integrity Code. The code states that "A student has an obligation to exhibit honesty and to respect the ethical standards of the academy in carrying out his or her academic assignments." The website lists examples of actions that violate this code.

**Disability Resource Services:** If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services, 140 William Pitt Union, 412-648-7890 or 412-383-7355 (TTY) as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

**Academic Integrity:** Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity will incur a minimum sanction of a zero score for the quiz, exam or paper in question. Additional sanctions may be imposed, depending on the severity of the infraction.