# MATH 148: PREPARATION FOR CALCULUS

**Course Description from Bulletin:**

Review of basic algebra. Functions and inverse functions. Trigonometry and trigonometric functions. Exponential and logarithmic functions. This course does not count toward any mathematics requirements in business, computer science, engineering, mathematics, or natural science degree programs.

**Enrollment:** Required for students who score less than 80% on the ALEKS placement exam.

**Required material:**

- Ratti, J.S., McWaters, M., Skrzypek, L., Bernards, J., & Fresh, W. (2023). *Precalculus: A unit circle approach, 4th edition.* (eBook through MyLab & Mastering, Pearson).
- Notebook or other device for notetaking, pen, pencil…
- A computer, a laptop, an iPad or other device you can use to access course materials on Canvas

**Prerequisites:** MATH 147 with a minimum grade of C or ALEKS placement score of at least 60.

**Core Curriculum Learning Outcomes:** The student will be able to:

1. Perform mathematical calculations by applying mathematical rules, symbolic manipulations, definitions, and/or theorems correctly.
2. Demonstrate their understanding of mathematical concepts and support their work claims using valid arguments.

**Course Learning Outcomes:** The student will be able to:

1. Determine the features of polynomial, rational, radical, exponential, and logarithmic functions.
2. Graph functions by determining their features or by transformations.
3. Perform algebraic operations with functions and find the composition of functions.
4. Solve problems involving inverse functions.
5. Determine the difference quotient of a function given its equation.
6. Use basic trigonometric identities, and the unit circle to solve trigonometric problems.
7. Graph trigonometric functions by applying transformations.
8. Solve trigonometric equations.
9. Use the language of mathematics to communicate mathematical ideas.
10. Justify their own solution approaches and critique solution approaches of others.

**Lecture Schedule:** Three 75 minutes lectures per week.

**Assessment:** Attendance and Participation 5%
Homework/Quizzes: 30%
Tests: 30%
Final Exam: 35%

| **Course Outline:** | | Hours |
|---|---|---|
| 1. | Review of algebra | 4 |
| 2. | Relations and functions, inverse functions | 2 |
| 3. | Graphing by transformations, even/odd functions | 2 |
| 4. | Polynomial functions | 6 |
| 5. | Absolute value functions | 4 |
| 6. | Rational functions | 6 |
| 7. | Exponential and Logarithmic functions | 8 |
| 8. | Unit circle and trigonometry of real numbers | 6 |
| 9. | Trigonometric functions | 8 |
| 10. | Trigonometric identities | 8 |

MATH 148: Preparation for Calculus

**Syllabus prepared by:** Gorjana Popovic

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