

Math 102 - Math Fundamentals: Mathematics for Life

1. Course Description

- This course covers the fundamentals of logic, including fallacies, inductive and deductive reasoning, conditional statements, and the evaluation of arguments; the basic ideas of finance, including simple and compound interest, amortized loans, and retirement accounts; ideas of probability and applications of probability to realistic situations; and problem solving. The course provides students with a strong foundation in quantitative reasoning and mathematical concepts applicable to everyday life situations and long-term decision-making strategies. (Formerly MATH 95)

2. Topics Covered

- This course is designed for those wanting to see how math can help them in real life. The topics covered start with understanding the general mathematics of finance (saving money, interest types, loans, and retirement concepts) through formulas, tables, and computerized spreadsheets.
- It moves on to understanding more about logic and reasoning which is shown through both symbolic form and games that emphasize the concepts. The last major topic involves chance and likelihood and allows students to see how these ideas can relate to their lives as well as other courses they may take.
- At the end of the course, students will have increased confidence in their math skills as well as the ability to analyze situations involving numbers, think critically about applied concepts, explain their thinking clearly, and justify their results using evidence and valid reasoning.

3. What to expect?

- Costs: Materials are provided FREE electronically or you have the option of purchasing hard copies in the bookstore.
- Time: The most common term lengths are listed below; others would be proportionate. Outside of class time is studying, completing homework, reviewing, etc.

Length of term	In-class time	Out-of-class time (typical)	Total hours/wk (typical)	Total Term hours (typical)
17 weeks	5 hrs/wk	7 hrs/wk	12	204
8 weeks	11 hrs/wk	14.5 hrs/wk	25.5	204
6 weeks	14	20	34	204

- Projects: There will be one major project required and counted as a large part of the overall grade.
- Technology: The class requires a scientific calculator and a limited number of Casio FX-300 ES Plus calculators are available to be checked out during the term. Further, the class will use and reference Google Sheets (or a spreadsheet program) and Google Docs (or a word processing program).

- Grading: The lecture and lab components are combined so the lab portion will not have a separate grade. The course may be taken with a letter grade or Pass/No Pass.

4. Who should enroll?

- This course could be the last math class many students need to graduate and/or transfer. This course is recommended for students who have struggled with algebra but need a transfer level course.
- Students who are majoring in STEM or Business (or want to be an elementary school teacher in the future) should take a different course.

5. What prior knowledge students need to know to be successful?

- Some calculator knowledge (scientific calculator)
 - Determining the value of an expression using the calculator with standard operations (+, −, ×, ÷) as well as exponents and parentheses.
- Knowledge of math fundamentals
 - Addition, subtraction, multiplication, division, exponents, and inverse operations.
 - Number sense: knowing that multiplying a positive number 1.05 makes the value larger and multiplying a positive number by 0.88 makes the value smaller.
 - Solve basic equations and linear equations.
 - Working with fractions and how to convert to decimal.
 - Inequality knowledge (<, >, ≥, ≤)
 - Being able to conclude that an answer doesn't make sense.
- Proportions and percentages
 - Understanding how to convert 20% into decimal form and vice versa.
 - Finding a percent of a number.
 - Solving a percent equation for a decimal, then converting to a percent.