

**Prerequisites/Corequisites:** MP3 or MTH 116.

**Type of Instruction:** Lecture

**Meeting Days and Times:**    M    12:15 pm - 01:05 pm    GLSN L100  
   TR    12:15 pm - 01:30 pm    LUPT 242

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**General Education:** This class fulfills 4 credits of the mathematics competency area of the General Education Requirements at Farmingdale State College.

**Catalog Course Description:** In this course, the topics introduced in College Algebra course will be extended. The course will provide a comprehensive study of functions, which are the basis of calculus and other higher-level mathematics courses. The students will study the properties, graphs, and some applications of polynomial, rational, inverse, exponential, logarithmic, and trigonometric functions. Note: Students completing this course may not receive credit for MTH 117.

**Course Learning Outcomes:** Upon successful completion of the course a student will be able to

- Define and analyze the standard functions (linear, quadratic, power, polynomial, rational, exponential, logarithmic, and trigonometric functions) including their properties, their graphs, and their transformations.
- Determine and analyze the inverse of a function.
- Solve linear, quadratic, rational, exponential, logarithmic, and trigonometric equations.
- Model exponential growth and decay problems.
- Use the Law of Sines and the Law of Cosines to solve triangle problems.

**General Course Requirements:**

Homework	20%
Exam 1	25%
Exam 2	25%
Final Exam	30%

## Homework

Homework will be assigned in WebAssign. Students should check regularly for updates.

## Exams

There will be two mid-terms worth 25% and a cumulative final worth 30%. The midterms will be in-class on the dates indicated in the calendar. The date of the final is set by the registrar.

## Grade Scale

Grade	Minimum %
A	93
A–	90
B+	87
B	83
B–	80
C+	77
C	73
C–	73
D+	67
D	60
F	0

## Required Materials

- Textbook - Precalculus, by J. Douglas Faires & James DeFranza. 5th Edition.
- WebAssign access code and account.
- Graphing Calculator.

*Note:* Calculators with a computer algebra system (C.A.S) are not allowed.

**Makeups:** Make-up exams and quizzes will be given to students who miss exams for valid reasons at the discretion of the instructor. In general, acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., field trips, professional conferences), military obligation, severe weather conditions, religious holidays and participation in official university activities such as music performances, athletic competition or debate. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) will be excused. Other reasons also may be approved. In addition, if you are already aware of a conflict with an exam date, then you need to discuss this with your instructor within the first two weeks of class.

**Religious Absences:** If you are unable to attend class on certain days due to religious beliefs, please consult with your instructor well in advance of the absence so that appropriate accommodation can be made.

**Disability Services Center:** If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Services Center, Roosevelt Hall, Room 151, or call 631-420-2411 as soon as possible this semester.

**Temporary Grades:** A grade of “I” (incomplete) is reported when, for some reason beyond their control, the student misses the final examination or has not completed a portion of the required work for the course. The decision to grant an “I” is at the sole discretion of the instructor. No achievement points are awarded for an incomplete. All incompletes must be resolved and a change of grade submitted no later than 30 days after the beginning of the next semester (fall to spring,

winter intersession to spring, spring to fall, summer session to fall). An instructor may grant an extension of an incomplete grade until the end of the semester by documenting and filling the approved form with the Registrar prior to the conclusion of the 30 day period. Any incomplete grade not finalized or extended by the instructor within the 30 day time period mentioned above will automatically be changed to an "F". An incomplete does not constitute successful completion of a prerequisite.

**Academic Honesty:** This course expects all students to act in accordance with the [Academic Integrity Policy](#) at the Farmingdale State College. If you work on the homework with your classmates, you must write your own solutions individually. There should be no help given or received on midterms or the final exam. Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, examinations and assessments - whether online or in class); presenting, as one's own, the ideas, words or calculations of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; using unauthorized aids in preparing work for evaluation (e.g. unauthorized formula sheets, unauthorized calculators, unauthorized programs or formulas loaded into your calculator, etc.); and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved. A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions. Such sanctions include failing the assignment in question and depending on the severity of the incident failing the course and/or other remedies.

**Copyright Statement:** Course material accessed from Blackboard or the Farmingdale website is for the exclusive use of students who are currently enrolled in the course. Content from these systems cannot be reused or distributed without written permission of the instructor and/or the copyright holder. Duplication of materials protected by copyright, without permission of the copyright holder, is a violation of the Federal copyright law, as well as a violation of SUNY copyright policy.

**Cancellation of Classes:** Weather and other campus-wide cancellations will be listed on the home page, Facebook and Twitter and you can also sign up for RAVE and SUNY Alert. Go to the Rave web page and use your Farmingdale user ID and password to enter the site. For SUNY-Alert, please visit the University Police web page. You may also be notified via email of class cancellations.

**Electronic Devices Policy:** Please silence all electronics while in class. Use of electronics during exams is prohibited.

**Attendance Policy:** This course will not deduct points for absences. For absences on exam or quiz days please see the make-up policy above.

**Use of Email:** It is Farmingdale State College policy that instructors and students use the Farmingdale email system or the Blackboard email system to contact one another.

**Disclaimer:** The instructor reserves the right to adjust the syllabus. By taking this course, you acknowledge that you have read this syllabus and abide to it and any such changes.

Date	Topic	Student Learning Outcomes
Week 1	The Real Line and Coordinate Plane 1.2, 1.3, 1.7	<ol style="list-style-type: none"> <li>1. Recognize common sets of numbers.</li> <li>2. Use interval notation to express certain sets of real numbers.</li> <li>3. Use the Distance Formula to find the distance between two points.</li> <li>4. Use the Midpoint Formula to find the midpoint of a line segment.</li> <li>5. Find the slope and the equation of a line.</li> </ol>
Week 2	Functions 1.6, 1.7, 1.8, 2.2	<ol style="list-style-type: none"> <li>1. Describe four different ways to represent a function.</li> <li>2. Identify linear functions.</li> <li>3. Identify quadratic functions.</li> <li>4. Define the absolute value function.</li> <li>5. Use transformations to sketch graphs of absolute value and quadratic functions.</li> </ol>
Week 3	Power Functions 1.8 & supplements	<ol style="list-style-type: none"> <li>1. Identify Power functions.</li> <li>2. Describe properties and graphs of power functions.</li> <li>3. Use transformations to sketch graphs of power functions.</li> </ol>
Week 4	Polynomials & Composite Functions 3.1, 3.2, 3.3, 2.4	<ol style="list-style-type: none"> <li>1. Describe the graphs of polynomial functions.</li> <li>2. Use transformations to sketch graphs of polynomial functions.</li> <li>3. Explain the factor theorem.</li> <li>4. Analyze polynomials having multiple zeros.</li> <li>5. Use long division to divide polynomials by other polynomial.</li> </ol>
Week 5	Rational Functions 2.3, 3.4	<ol style="list-style-type: none"> <li>1. Identify a rational function and state its domain.</li> <li>2. Identify asymptotes.</li> <li>3. Graph a rational function by using transformations.</li> </ol>
Week 6	Inverse Functions 2.5	<ol style="list-style-type: none"> <li>1. Identify one-to-one functions.</li> <li>2. Find inverse functions symbolically.</li> <li>3. Identify domain and range of inverse functions</li> </ol>
Week 7	Exponential Functions 5.2	<ol style="list-style-type: none"> <li>1. Identify exponential functions</li> <li>2. Identify domain and range of exponential functions</li> <li>3. Graph an exponential function by using transformations.</li> </ol>
Week 8	Logarithmic Functions 5.3	<ol style="list-style-type: none"> <li>1. Evaluate the common logarithmic function.</li> <li>2. Evaluate logarithms with other bases.</li> <li>3. Solve exponential and logarithmic equations.</li> <li>4. Convert between exponential and logarithmic forms.</li> <li>5. Expand and combine logarithmic expressions.</li> </ol>
Week 9	Exponential Growth and Decay 5.4	<ol style="list-style-type: none"> <li>1. Distinguish between linear and exponential growth.</li> <li>2. Explain doubling time and half-life</li> <li>3. Recognize exponential growth and decay.</li> <li>4. Calculate compound interest.</li> <li>5. Use the natural exponential function in applications.</li> </ol>
Week 10	Angles, Right-Triangle Trigonometry 4.1, 4.2, 4.3	<ol style="list-style-type: none"> <li>1. Learn basic concepts about angles.</li> <li>2. Apply degree measure to problem.</li> <li>3. Apply radian measure to problems.</li> <li>4. Calculate arc length.</li> <li>5. Calculate the area of a sector.</li> <li>6. Apply right triangle trigonometry.</li> </ol>
Week 11	Sine, Cosine and Their graphs 4.4, 4.5	<ol style="list-style-type: none"> <li>1. Define the sine and cosine functions for any angle.</li> <li>2. Define the sine and cosine functions for any real number by using the unit circle and the wrapping function.</li> <li>3. Represent the sine and cosine functions.</li> <li>4. Use the sine and cosine functions in applications.</li> <li>5. Learn basic transformations of the sine and cosine graphs.</li> </ol>
Week 12	Trig Functions & Identities 4.6, 4.7	<ol style="list-style-type: none"> <li>1. Define the other trigonometric functions for any angle and any real number.</li> <li>2. Represent other trigonometric functions.</li> <li>3. Graph trigonometric functions by hand.</li> <li>4. Learn basic identities.</li> <li>5. Learn and apply the reciprocal and quotient identities.</li> <li>6. Learn and apply the Pythagorean identities.</li> <li>7. Simplify trigonometric expressions.</li> </ol>
Week 13	Inverse Trig Functions 4.8	<ol style="list-style-type: none"> <li>1. Define and use the inverse sine function.</li> <li>2. Define and use the inverse cosine function.</li> <li>3. Define and use the inverse tangent function.</li> <li>4. Solve triangles and equations.</li> </ol>
Week 14	Trig applications 4.9	<ol style="list-style-type: none"> <li>1. Derive the law of sines.</li> <li>2. Derive the law of cosines.</li> <li>3. Solve triangles.</li> </ol>
Week 15	Final Exam Week	