

MATH 115 Departmental Syllabus

MATH 115 Course Description: The various classes of functions and their graphs are explored. Function classes include linear, quadratic, polynomial, rational, exponential, logarithmic and trigonometric. Skills and concepts needed for calculus (MATH221) are emphasized.

PREREQUISITE: Requires a grade of C- or better in MATH010, or a score of 60 or better in the Math Placement Test. See <https://www.mathsci.udel.edu/courses-placement/ud-math-placement> for more information.

RESTRICTIONS: Students who received credit in MATH117, MATH221, MATH222, MATH231, MATH241, MATH242, or MATH243 are not eligible to take this course without permission.

TEXTBOOK: *PreCalculus* by Julie Miller & Donna Gerken, McGraw-Hill, 2017 (used as an associated e-book within the ALEKS program)

OTHER REQUIRED MATERIALS: ALEKS online homework system, scientific calculator, Mathematical Sciences Learning Lab (MSLL) created course pack

TEXTBOOK SECTIONS AND/OR TOPICS

Note: This class meets twice a week for 75 minutes each. A typical semester contains 26-28 class meetings. This schedule is based on a 26 class semester.

Topic	Textbook Section or pages	# of 75 min classes
Linear Functions - concept, graphing and applications	1.5	1
Functions & Relations - definitions, notation	1.3	0.5
Reading a Graph - domain, range, increasing/decreasing/constant, zeros, inequalities	1.7	0.5
Piecewise Functions - graphing, evaluating, and interpreting	1.7	1
Transformations - done throughout the semester with all functions	1.6	1

Topic	Textbook Section or pages	# of 75 min classes
Composition - done throughout the semester with all functions	1.8	1
Inverse Functions - done throughout the semester with all functions	3.1	1
Exponential Functions - concept, evaluating, and graphing, includes "e"	3.2	2.5
Logarithmic Functions - concept, graphing, evaluating, domain, change of base, and properties	3.3 3.4	2
Exponential & Logarithmic Functions - solving equations and applications	3.5 3.6	2
Quadratic Functions - graphing and evaluating, finding characteristics	2.1	1.5
Quadratic Functions - applications and solving inequalities	2.1 2.6	1
Average Rate of Change and the Difference Quotient	p 158-159 p 220-223	0.5
Square Root Function - domain, graphing, evaluating		0.5
Polynomial Functions - graphing	2.2	1.5
Polynomial Functions - applications and inequalities	2.6	1
Rational Functions - domain, graphing, and evaluating	2.5	2.5
Rational Functions - solving inequalities	2.6	.5
Trigonometry - angles and definitions	4.1	0.5
Trigonometry - right triangle definitions and applications, inverse trig functions	4.3 4.7	1.5
Trigonometry - unit circle trig and trig functions of any angle	4.2 4.4	1.5
Trigonometry - graphing sine and cosine, solving trig equations	4.5 5.5	1

GRADING SCALE: $A \geq 90\%$, $A- \geq 87\%$, $B+ \geq 84\%$, $B \geq 80\%$, $B- \geq 77\%$, $C+ \geq 74\%$,
 $C \geq 70\%$, $C- \geq 67\%$, $D+ \geq 64\%$, $D \geq 60\%$, $D- \geq 57\%$, $F < 57\%$.

ASSESSMENT COURSE GRADE WEIGHT: Final Exam = 22 - 26%,
Homework (online and written) = 26 - 29%, 2-4 Exams = 44 - 48%, Attendance/Open
Lab Requirement/Course Analysis = 4%

Notes: Completed by Tammy Rossi, July 2021 based on Newark campus syllabi for
Fall 2019 and anticipated Fall 2021 (face-to-face class meetings). Approved by the
Foundational Math Committee.