

Fall 2019	MATH150	ALGEBRA and TRIGONOMETRY
Credits:	3	
Type of Course:	Lecture, in-class problem solving	
Class Meetings:	15	
Prerequisites:	None	
Instructor:	Prof. Charles Rubenstein, Ph.D., CEng Email → crubenst@pratt.edu	
Office Hours:	Mondays: 5:15pm – 6:15pm Room 402 as needed, and by appointment	
Time and Location:	Mondays: 6:30pm – 9:20pm Room 402 – Pratt Manhattan Campus	
Class Resources:	http://www.charlesrubenstein.com/150	
Syllabus date:	25 August 2019 – Revision 1	

I. Course Overview:

The primary purpose of this course is to learn the foundations of algebra and trigonometry. Attention will be paid to problem-solving skills and the applications of algebra and trigonometry to solving problems dealing with physical systems you will encounter in your studies, and your career. Topics include equations and inequalities, functions, polynomial functions, trigonometric functions, and systems of equations and inequalities.

II. Learning Outcomes:

Upon completion of the course students will be able to:

- manipulate algebraic expressions and calculate numerical values
- solve linear equations
- set up and solve practical “word” problems
- factor algebraic expressions and graph functions
- use analytic geometry to find the slopes and equations of straight lines
- use exponents and logarithms and solve quadratic equations
- use and manipulate the trigonometric functions (*sine*, *cosine*, *tangent*...)
- find values for the sides and angles of geometric figures
- calculate areas and volumes of geometric figures and solids
- solve problems of two variables

III. Course Requirements:

a. Attendance: Institute policy - arriving more than fifteen minutes late will constitute a class absence.

Two (2) unexcused absences may result in a whole letter grade deduction from your final grade.

Three (3) unexcused absences will result in an automatic “F” for the course.

b. Homework: Homework assigned at a class session will be due at the next week’s class session.

IV. Method of Assessment and Grading:

Your final grade will be comprised of class participation, ten homework quizzes, two exams and a final.

THERE WILL BE NEITHER MAKE-UP QUIZZES NOR MAKE-UP EXAMS.

a. Homework and Homework Quizzes: (25% of Final Grade)

There will be **ten (10) Quizzes (2.5% per quiz), Worth 25%** of your final grade. Homework will be reviewed via a five minute in class quiz the week the assignment is due. All homework and quizzes will be reviewed in class after the quiz and become part of the class note set posted online. *Although homework and its quizzes only accounts for 25% of your final grade, the content of the homework assignments is used as the basis for all exams.*

b. Exams: (70% of Final Grade)

There will be two (2) **1-hour written exams. Exam 1 is worth 20%** and **Exam 2 (take home) is worth 15%**

There will be a **3-hour written, in-class, comprehensive Final exam worth 35%** of your final grade.

c. Class Participation: (5% of Final Grade)

V. Supplemental Material:

* **Textbook:** “College Algebra & Trigonometry”, Sixth edition, by Michael Levitan, Bernard Kolman, and Arnold Shapiro, BVT Publishing, LLC, 2011. ISBN: 978-1-60229-880-4

* **Graphing Calculator:** Student’s Choice; TI-83 graphing calculator suggested.

VI. SEMESTER SCHEDULE: Section 01: Mondays 6:30pm-9:20pm

Math Placement Exam

All students must take a Math Placement Exam to see if they are ready to begin their study of Calculus. The exam will be administered online. Students that pass the math placement exam will proceed to Calculus 1 and those who do not pass the exam will continue in Math150.

NO CLASSES: Monday 9/02/19 - Labor Day – Pratt Holiday

NO CLASSES: Monday 9/30/19 - Instructor’s Holiday

– class time made up by providing a take-home exam –

VI. SEMESTER SCHEDULE: Section 01: Mondays 6:30pm-9:20pm; *continued*

Session 01 – (8/26/19) Introduction: Numbers, Arithmetic Operations, Fractions

NO CLASSES: Monday 9/02/19 - Labor Day – Pratt Holiday

Session 02 – (9/9/19) Manipulation of Algebraic Expressions

Readings Due: Chapter 1, Pages 1-17.

Session 03 – (9/16/19) Solving Linear and Quadratic Equations of One Variable

Readings Due: Chapter 1, finish. Quiz on Homework Assignment Set #1

Session 04 – (9/23/19) Solving Equations of Two Variables

Readings Due: Chapter 2. Quiz on Homework Assignment Set #2

NO CLASSES: Monday 9/30/19 - Instructor's Holiday

– class time made up by decreasing class break time and providing a take-home exam –

Session 05 – (10/7/19) **In Class, One-hour Exam** Polynomial Functions

Readings Due: Chapter 3. Quiz on Homework Assignment Set #3

Session 06 – (10/14/19) **Review of First Exam.** Polynomial Functions, continued

Readings Due: Chapter 4.

Session 07 – (10/21/19) Functions, Graphing, Exponents and Logarithms

Readings Due: Chapter 5. Quiz on Homework Assignment Set #4

Session 08 – (10/28/19) Trigonometric Functions, Pythagorean Theorem

Readings Due: Chapter 6. Quiz on Homework Assignment Set #5

Session 9 – (11/4/19) Applications of Trigonometry

Readings Due: Chapter 7. Quiz on Homework Assignment Set #6

Session 10 - (11/11/19) **Exam #2 Distributed.** Analytic Trigonometry: Identities, Graphing

Readings Due: Chapter 8. Quiz on Homework Assignment Set #7

*** You are responsible for obtaining the second exam (worth 15% of final grade). If you miss class you MUST get a copy from the Math/Science Department Office. You must complete the exam on your own – not with friends, colleagues, etc. You should prepare up to TWO (2) double-sided 8.5" x 11" sheets (4 sides) handwritten reference sheets from your notes. All equations and work must be turned in on scrap paper.**

Session 11 – (11/18/19) **Exam #2 DUE** Areas and Volumes of Geometric Figures and Solids

Readings Due: Chapter 9. Quiz on Homework Assignment Set #8

Session 12 – (11/25/19) **Review of Exam #2.** Systems of Equations and Inequalities

Readings Due: Chapter 10. Quiz on Homework Assignment Set #9

Session 13 – (12/2/19) **Review of Algebra and Trigonometry Topics**

Quiz on Homework Assignment Set #10

Session 14 – (12/9/19) **In-class Final Exam (worth 30% of final grade)**

***The Final Exam will be an in-class written exam covering the entire semester's work. Up to TWO (2) double-sided, handwritten, 8.5"X11" reference sheets permitted.**

VIII. PRATT INSTITUTE or Departmental POLICIES (URLs correct as of August 2018)**a. Disability Statement:**

If you have a physical or learning disability that we should know about, please contact Elisabeth Sullivan at 718-636-3711, to discuss your needs and how we can best serve you. To receive any classroom accommodations and other services, you must have documentation of your disability **on file** with the instructor and in the Department of Math and Science Office. Your records will be kept completely confidential. For more information, please see the Pratt Learning/Access Center webpage:

<https://www.pratt.edu/student-life/student-affairs/learning-access-center/>

b. Community Standards:

Students are expected to adhere to Pratt's community standards. These are listed on the Pratt Institute Student Policies webpage at: <https://www.pratt.edu/student-life/student-affairs/office-of-the-vice-president-for-student-affairs/student-policies/>

The Pratt Student Handbook is also available online.

Students should also familiarize themselves with the Pratt Institute Academic Integrity Code and Plagiarism.

c. Attendance and Conduct:

The continued registration of any student is contingent upon regular attendance, the quality of work and proper conduct. Irregular attendance, neglect of work, failure to comply with Institute rules and official notices, or conduct not consistent with general good order is regarded as sufficient reasons for dismissal.

There are no unexcused absences or cuts. Students are expected to attend all classes. No make-up exams are available.

Any unexcused absences will affect the final grade as noted on page 1 in Section III.a.

d. Cheating:

If a student uses dishonest methods to fulfill course requirements, they are cheating. Examples of this include, but not limited to: obtaining or offering copies of exams or information about the content of exams in advance, bringing notes in any form to a closed book exam, looking at another student's paper during an exam, receiving or communicating any information from or to another student during an exam. **CELL PHONES ARE NOT PERMITTED DURING QUIZZES NOR DURING EXAMS.**