

MATH 145: Math for the (Mis)Information Age

May Express: Remote

May 4 - 29, 2020

Syllabus subject to change at any point in the semester at instructor's discretion.

Weekly Schedule

Mon - Wed: 12 - 3p, Zoom Meetings (Required)

Thur: Schedule a one-on-one meeting. (Optional)

Fri: Exams. (Required: Time TBD)

Instructor: Dr. Anthony Bosman, bosman@andrews.edu

Learning Platform: (required) Hawkes Learning, *Viewing Life Mathematically: A Pathway to Quantitative Literacy*. You will purchase lifetime access to the Hawkes online learning platform that will be used for practice, review, online problem sets, and exams. Also included is a digital copy of the textbook.

Prerequisites: 46-60 ALEKS score or P2 on Math Placement Exam. If you scored a P4 or P5, talk with me about if another course is a better fit. This course is required for nursing majors.

Course Description: A quantitative reasoning course that teaches how to use algebraic tools and real-world data to make informed decisions and avoid being misled in public policy, science, health, and business. Topics include logic; interpreting graphs and tables; functions such as linear, quadratic, exponential, and logarithmic with applications to population growth and personal finance; and fundamentals of probability and statistics such as false positives and statistical significance. *This course fulfills the General Education Mathematics reasoning requirement.*

Course Goals: Students will...

- develop their analytical reasoning and problem solving skills.
- develop confidence and ability to analyze common mathematical problems and statements that appear in a wide range of disciplines.
- understand the importance of mathematical literacy to society.
- develop a growth mindset that interprets failures as opportunities for continued learning, rather than a fixed mindset that interprets failures as indicators of one's inability.

Course Outline:

- May 4 - 8:** Reasoning Well: Logic
- May 11 - 15:** Understanding Growth and Money
- May 18 - 22:** Making Sense of Statistics
- May 25 - 29:** The Mathematics of Citizenship

Grade Policy: *I do not give makeup exams for any reason; however, your lowest exam grade will be dropped.*

Final grades will be computed as follows:

45% Hawkes Problem Sets + 45% Exams + 10% Engagement

And awarded as follows:

A (93-100%), A- (90-92%), B+ (87-89%), B (83-86%), B- (80-82%), C+ (77-79%), C (73-76%), C- (70-72%), D (60-69%), F(\leq 59%).

Hawkes Learning: Problem sets will be assigned and due regularly through Hawkes. You are encouraged to from virtual study groups and make regular use of my office hours.

Attendance: Since you learn mathematics best by active participation, class periods will consist of a hybrid of lecture and activities. These are carefully designed to maximize your learning, so students are expected to be present for the full extent of all class periods and fully attentive. During remote class periods, you will be expected to have your camera on. More than 1 missed class period, regular tardiness, or disengagement during class time will be reflected in a lower *Engagement* grade.

Academic Honesty: Honesty in all academic matters is a vital component of personal integrity. Breaches in academic integrity principles are taken seriously. Acts of academic dishonesty as described in the University Bulletin are subject to incremental disciplinary penalties with redemptive intent. Such acts are tracked in the office of the Provost. Repeated and/or serious offenses will be referred to the Committee on Academic Integrity for further recommendations on penalties, including dismissal.

Diverse Learning Needs: It is my intention that all students receive fair and equal treatment in this course. I design the course to respect a diverse class of learners, but often there are additional steps we can take to aid an individual's unique learning needs. Please don't hesitate to speak with me during the first week of class about any concerns you may have. If you have a documented disability that requires academic adjustments or accommodations, immediately contact the Student Success office at disabilities@andrews.edu. Together we will work to ensure a fair and accessible learning environment.

Wellness: It's important that we take care of ourselves and each other. I encourage you to prioritize your physical, mental, and spiritual wellness, taking advantage of Andrew's several remote resources. In particular, the *Counseling and Testing Center* has qualified staff who are able to help you navigate social, emotional, and other concerns. Don't hesitate to check them out! Getting proper sleep, eating well, exercising regularly, enjoying Sabbath rest, and reaching out for help when needed are important habits to cultivate that will help you thrive in this course and life.

Feedback, Help, and Connecting: I greatly value feedback from my students on how I can improve their learning and experience with the course – I welcome your comments and suggestions! I will keep your grades up-to-date so that you can have ongoing feedback on your performance in the course; don't hesitate to reach out to me for further feedback. I hope you will take advantage of my office hours to further discuss course concepts and problems, things worrying you, and things you're passionate about. I also enjoy connecting with groups of students over lunch and other university settings – don't hesitate to let me know if you are performing in a concert, giving a presentation, or competing in a sporting match.

Instructor Bio: Anthony M. Bosman, PhD, earned his Bachelor's degree from Stanford University and doctorate in mathematics from Rice University. His research interests are in low dimensional topology, particularly knot theory and its connections with 3- and 4-dimensional manifolds. He is also interested in effective teaching and learning, innovation in higher education, and the relationship between faith and reason. <http://www.anthonymbosman.com>