

INSTRUCTOR CONTACT INFORMATION

Location: online
Time: online
Instructor: Dr. Karl Frinkle
Office: MTH 112
Office Hours: MTWR 12:00-14:00, or by appt.
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COURSE DESCRIPTION

A study of equations and functions (linear, polynomial, rational, exponential, and logarithmic) from various perspectives (symbolic, verbal, numerical, and graphical); using technology for graphing functions, solving equations and modeling data with regression analysis. This course is designed for non-STEM majors and those not planning to take Math 2215 – Calculus I.

COURSE OUTLINE

We will attempt to cover approximately the first four chapters of the text. There is a prologue which delves into the use of calculators to perform arithmetic, and we may refer to it if need be, but much of it will not be pertinent to our study as we will be using *Mathematica*. Chapter 1 investigates the various ways we define functions, chapter 2 is an analysis of functions, chapter 3 is the study and application of linear functions, and chapter 4 is the study of exponential and logarithmic functions, and their applications.

COURSE PREREQUISITES

MATH ACT of at least 19 or a passing score on the departmental placement exam or MATH 0123.

REQUIRED MATERIALS

Text: *Functions and Change: A Modeling Approach to College Algebra* (6th edition), B. Crauder, B. Evans, and A. Noell, ISBN # 978-1-337-11134-8

Software: We will be using *Mathematica* for the duration of this course, more information about how to download it for *free* can be found here:

<https://it.se.edu/itkb/mathematica/>

LEARNING OBJECTIVES

The following objectives will be met in this class:

1. Interpret functions using real-world contexts by translating across multiple representations, including symbols, tables, graphs, and words.
2. Identify and analyze families of functions, including linear, polynomial, rational, exponential, and logarithmic functions.
3. Determine key characteristics of functions, including global properties and local patterns of change, and interpret their meanings in context, including asymptotes, concavity, end behavior, extrema, increasing/decreasing intervals, and turning points.
4. Combine and modify existing functions to create new functions, including composition of functions, cost, revenue, and profit functions, transformation of functions, and regression analysis.
5. Apply algebraic techniques and digital resources to create, analyze, and interpret appropriate models (either functions or systems of equations) of real-life phenomena.

GENERAL
EDUCATION
OUTCOMES

As a general education course, this course contributes to the critical thinking and the mathematical or quantitative reasoning components of the general education program at Southeastern. The goal of the critical thinking component is to enhance the ability of students to integrate new information with previously acquired information to solve novel complex problems. To address the critical thinking goal, students will solve problems described verbally, graphically, symbolically or numerically. The goal of the mathematical or quantitative reasoning component is to develop the ability of students to understand and apply mathematical abstraction. To address the mathematical or quantitative reasoning goal, students will:

1. Solve problems using the principles of algebra and statistics.
2. Apply mathematical reasoning and technology to analyze and interpret quantitative information.
3. Use and interpret mathematical formulas.

GRADING POLICY

The work you will do in this course which will add to your final grade can be categorized as follows:

- **Homework:** Homework will be assigned on a section-by-section basis and will be due on a weekly basis. Each homework section will be given a grade, and the resulting average is worth 20% of the course grade. **Homework will be submitted through BlackBoard and must be in the form of a *Mathematica* notebook.**
- **Project:** There will be a project assigned mid-way through the semester. Expect to gather data from external sources and use *Mathematica* for the subsequent analysis of your data. This project will be worth 20% of your grade. **The Project will be submitted through BlackBoard and must be in the form of a *Mathematica* notebook.**
- **Cumulative Quizzes:** There will be five cumulative quizzes given throughout the semester and will be worth 40% of your final grade. **Quizzes will be submitted through BlackBoard and must be in the form of a *Mathematica* notebook.**
- **Weekly Check-Ins:** There is a 'Weekly Check-Ins' Forum on the Discussion Board. You will have various tasks to perform in this Forum each week! This counts for 20% of your final grade.

Rounding to the next letter grade is not automatic and will be at the discretion of the instructor. The grading scale is as follows:

Letter Grade	Percentage Range
A	90-100 %
B	80-89 %
C	70-79 %
D	60-69 %
F	0-59 %

MANDATORY
STATEMENTS

Mental Health Support: Any student (in-person or online) who desires free, confidential, mental health services is encouraged to contact Student Wellness Services at (580) 745-2988, during business hours, to discuss the options currently available to them. For 24-hour emotional crises, you may call or text the National Suicide and Crisis Lifeline at 988 or use the online chat at 988lifeline.org.

Disability Accommodations: Any student needing special accommodations due to a disability should contact the Office of Disability Services, GDJ Student Union Room 328 or call (580) 745-3036. It is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely

manner. If you have questions regarding disability accommodation process or policy please contact disabilityservices@se.edu for more information.

Equity and Non-Discrimination Statement: Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Title IX Coordinator, (580) 745-3090, or mdavis@se.edu.

Academic Dishonesty: of any kind will not be tolerated. You may fail an assignment, fail the course or be expelled from the University for academic dishonesty. As a student, it is your responsibility to be familiar with and abide by The Student Code of Conduct, which may be viewed in the Student Handbook. Please note that your own original work is expected for all assignments that you submit. Ignorance is not generally accepted as an excuse.

COVID STATEMENTS

Conversion to Online Format: Southeastern students should be aware that in the event of an announced extended University closure due to emergency reasons (including but not limited to: controlling outbreaks such as COVID or flu, weather, issues with campus facilities, etc.) onsite classes may be converted to an online/remote format. Students should plan ahead to ensure they have access to the computer equipment (either PC, MAC, or tablet), webcam, and internet connectivity to continue their classes in an online/remote format. Please read all of your official Southeastern student emails as the transition from onsite to online/remote might require a reorganization in your personal situation. Students will be granted a 72-hour transition and grace period. Online classes will continue as scheduled without disruption unless otherwise announced. When these situations arise stay safe and contact your Instructor as the situation requires. This policy was updated on June, 11 2022 and is subject to change.

In this case of an extended absence due to COVID 19, or any other illness, which is defined to be the equivalent of one week of class, the student should work with the Office for Student Affairs to notify instructors. Students will be asked to provide Student Affairs documentation of the illness/absence. Faculty will receive an email from Student Affairs regarding the reason for the extended absence of the student. Faculty will then determine if and how consideration for the work missed will be handled. Students with a long-covid diagnosis will work with the Disability Office for an accommodation.