APPLIED ALGEBRA AND OPTIMIZATION WITH DATA ANALYSIS

MATH 1370

Course Description:

This is an applied algebra course with optimization, teaching the following topics with an emphasis on data analysis and application: algebraic, exponential, and logarithmic functions; derivatives and applications thereof; and statistics. The course will emphasize data analysis and applications of covered topics in order to demonstrate the relevance of mathematics to solving real-world problems. **4 credits**

Prerequisites:

ACT Math sub score at least 23, Math SAT at least 540, or Math SAT2016 at least 570 within last 2 years; or Accuplacer or COMPASS score at least 4 within last 2 years; or MATH 1310 with C- or better with in last 2 years

Overview of content and purpose of the course:

This course will show students how the mathematics of algebra, differential calculus, and statistics are incorporated in their field of study; Business, Nursing, Economics, Public Affairs, Media, Psychology, and the Sciences, just to name a few. Beyond manipulating functions and their graphs, this course will focus on how functions and their graphs can be used to approximate or analyze data through examples and class projects. Differential calculus will be used to demonstrate the applicability of derivatives and basic calculus principles to these same fields of study. Additionally, the course will discuss the basics of statistics, again, through applications and real-world scenarios. Bringing technology into the curriculum will aid students with their future endeavors to more quickly learn new technologies and incorporate the use of such technologies into the students' careers.

Anticipated audience/demand:

This course is meant for any student needing a Statistics, Quantitative Literacy, or Math course beyond MATH 1310, Intermediate Algebra, and is one of two options as a required mathematics course for all students in the College of Business Administration.

Major topics:

1. Linear Equations and Inequalities in Two Variables
2. Systems of Equations
3. Exponential & Logarithmic Functions
4. Derivatives
5. Statistics

List of performance objectives stated as student learning outcomes:

1. Basic mathematical concepts and algebraic manipulations
2. Graphing and properties of basic functions
3. Applications of functions to real-world scenarios
4. Resolving derivatives of basic functions
5. Interpreting derivatives in real-world scenarios
6. Examination and interpretation of data
7. Using technology to aid in data analysis
8. Using technology to communicate mathematical concepts
9. Applying statistical methods to real-world scenarios
10. Using technology to find and interpret statistics

Textbooks:

Finite Mathematics & Applied Calculus, Waner Packaging

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