CISCO COLLEGE - COMMON COURSE SYLLABUS

MATH 1324 MATHEMATICS FOR BUSINESS AND SOCIAL SCIENCES I (FINITE MATHEMATICS)

August 2020

Instructor: David Hogan
Phone: 325-554-7755
Schedule: M – F, 1:58–2:48pm
Conference Period: M–F, 1:10–1:50pm
Email: dhogan@jimned.esc14.net

I. COURSE TITLE AND NUMBER

Mathematics for Business and Social Sciences I - Math 1324 (Credit: 3 semester hours)

II. TEXTBOOK

Mathematics with Applications in the Management, Natural, and Social Sciences
(12th Ed. 2019), Lial, Hungerford, Holcomb, Mullins; Pearson

III. COURSE DESCRIPTION

The application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value.

IV. LEARNING OUTCOMES (ACGM – Spring 2014)

Upon successful completion of this course, students will:

1. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.
2. Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.
3. Apply basic matrix operations, including linear programming methods, to solve application problems.
4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
5. Apply matrix skills and probability analyses to model applications to solve real-world problems.

V. CORE OBJECTIVES (THECB)

This course meets the Core Objectives of Critical Thinking, Communication Skills, and Empirical & Quantitative Skills for the Foundational Component Area of Mathematics as required by the Texas Higher Education Coordinating Board.

Math 1324 (Mathematics for Business and Social Sciences I) emphasizes the Core Objective of Empirical & Quantitative Skills through a study of linear equations, quadratic equations, functions, graphs, inequalities, interest, annuities, linear programming, systems of linear equations and matrices. Students demonstrate these skills through homework assignments and classroom exams. Problem solving skills with related applications to management, economics, and business require the student to demonstrate the Core Objective of Critical Thinking. Students are required to graph polynomial, rational,

exponential, and logarithmic functions and must correctly use mathematical notation and terminology in order to clearly express the key mathematical concepts in this course to meet the Core Objective of Communication Skills.

VI. COURSE REQUIREMENTS

Pre-requisites:
Placement testing by TSI with a score of 350 or above in Math and two years of high school algebra (Algebra I & II) or Math 1314.

Attendance policy:
Prompt and regular class attendance is considered necessary for satisfactory work. It is the responsibility of the professor to keep an accurate and comprehensive record of attendance. Cisco College recognizes that absence from class may occur due to illness, death or illness in the immediate family, observance of a religious holiday, or participation in a college-sponsored activity. (Absences due to participation in a college-sponsored activity must be authorized by the Vice President of Instruction.) When absences occur due to the above-stated reasons, the student is allowed to make up work missed; the professor may require the work to be made up within two weeks from its original due date. During a regular Fall or Spring semester, the following requirements apply for face-to-face classes. For a class that meets three times per week, a student is allowed six absences. For a class that meets two times per week, a student is allowed four absences. For a class that meets one time per week, a student is allowed two absences. If a student misses one more than the allowed number of absences, he/she may be dropped from the class if the professor deems the student to be failing due to excessive absences and/or failure to make up work due to absences.

For online or hybrid courses, a student may be dropped after he/she fails to access the course web site and/or participate in the class for a two-week period, and the professor deems the student to be failing.

Any student who ceases to attend class without officially withdrawing through the Admissions Office is subject to a grade of "F." The student will receive a grade of "W" for the course if withdrawn before the "last day to drop with a "W," and an "F" if withdrawn after "the last day to drop with a "W." Three tardies may constitute an absence.

Absence Policy and Make-up Work:
Cisco College recognizes that absences from class may occur due to illness, death or illness in the immediate family, observance of a religious holiday, or participation in a College-sponsored activity. (Absences due to participation in a school-sponsored activity must be authorized by the appropriate administrator.) When absences occur due to the above, the student is allowed to make up work missed; the instructor may require the work to be made up within two weeks.

Calculator Policy:
Scientific and graphing calculators are generally permitted for this course. However, course instructors may restrict their usage at their discretion. Students are not required to purchase graphing calculators for this course. However, those students planning to take additional mathematics courses are encouraged to do so. Calculators with CAS (Computer Algebra System) technology are NOT permitted. Examples of these

calculators are: the HP 50g, the HP Prime, the TI-Nspire CAS, the TI-89, TI-92, and the Casio ClassPad.

VII. COURSE ASSESSMENT

Grading Policy:
Chapter Tests (50%)
Quizzes (30%)
Post-test (5%)
Final Exam (comprehensive) (15%)

Grading Scale:
90 - 100 A
80 - 89 B
70 - 79 C
60 - 69 D (no high school credit awarded for a D)
< 60 F

Pre- & Post-Tests:
A departmental pre-test will be given on the first day of class. The pre-test will not count toward a student's grade in the course. A departmental post-test will be given at the end of the course and will count 5% of the final grade. Items on the pre- and post-tests are designed to measure both the Learning Outcomes at the course level and the Core Objectives of the Core Curriculum at the program level.

VIII. COURSE OUTLINE

All sections of this course (face-to-face, online, and hybrid) will cover the following chapters and sections of the text:

Chapter 2: Graphs, Lines, and Inequalities ..……..……. ~1 1/2 weeks
- 2.1 Graphs
- 2.2 Equations of Lines
- 2.3 Linear Models
- 2.4 Linear Inequalities
- 2.5 Polynomial and Rational Inequalities

Chapter 3: Functions and Graphs …….. …..……. ~2 1/2 weeks
- 3.1 Functions
- 3.2 Graphs of Functions
- 3.3 Applications of Linear Functions
- 3.4 Quadratic Functions and Applications
- 3.5 Polynomial Functions
- 3.6 Rational Functions

Chapter 4: Exponential and Logarithmic Functions ……. ~2 weeks
- 4.1 Exponential Functions
- 4.2 Applications of Exponential Functions
- 4.3 Logarithmic Functions
- 4.4 Logarithmic and Exponential Equations

Chapter 5: Mathematics of Finance…….……..…….. ~2 weeks
- 5.1 Simple Interest and Discount
- 5.2 Compound Interest
- 5.3 Annuities, Future Value, and Sinking Funds
- 5.4 Annuities, Present Value, and Amortization

Chapter 6: Systems of Linear Equations and Matrices ……. ~3 weeks
- 6.1 Systems of Linear Equations in Two Variables
- 6.2 Larger Systems of Linear Equations
- 6.3 Applications of Systems of Linear Equations
- 6.4 Basic Matrix Operations
- 6.5 Matrix Products and Inverses
- 6.6 Applications of Matrices

Chapter 7: Linear Programming ……....…..... ~3 weeks
- 7.1 Graphing Linear Inequalities in Two Variables
- 7.2 Linear Programming: The Graphical Method
- 7.3 Applications of Linear Programming
- 7.4 The Simplex Method
- 7.5 Maximization Applications
- 7.6 The Simplex Method: Duality and Minimization
- 7.7 The Simplex Method: Nonstandard Problems

Chapter 8: Sets and Probability …… ~2 weeks
- 8.1 Sets (Omit)
- 8.2 Applications of Venn Diagrams and Contingency Tables (Omit)
- 8.3 Introduction to Probability
- 8.4 Basic Concepts of Probability
- 8.5 Conditional Probability and Independent Events
- 8.6 Baye's Formula

IX. COURSE NOTICES

Student Technology Use:
Use of communication devices, which include but is not limited to cell phones, palm devices, and laptops, is prohibited. All devices must be turned off and should not be taken out during class.

Student Conduct, Notices and College Policies Students are expected to follow all classroom policies listed in the course syllabus. College-wide policies can be found in the College Catalog and the Student Handbook. Inappropriate behavior in the classroom shall result, at a minimum, in a request to leave class. The Student Handbook contains a list of specific prohibitions.

Course Content College-level courses may include controversial, sensitive, and/or adult material. Students are expected to have the readiness for college-level rigor and content. (Faculty may add to notice).

Academic Integrity It is the intent of Cisco College to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work they have not honestly performed is regarded by the faculty and administration as a serious

offense and subjects the offender to disciplinary action. The Student Handbook contains a list of academic integrity definitions and violations. (Faculty may add to notice.)

Cross-Listed Course Sections For reasons of pedagogy and course management, this course may be cross-listed with one or more other course sections on Canvas. Cross-listed course sections may interact. (Applicable to cross-listed sections of any format.)

Changes to the Syllabus The schedule and procedures in this syllabus are subject to change if deemed appropriate by the instructor. (Faculty may add to notice.)

Disability Services/ADA Accommodations Cisco College provides appropriate accommodations to qualified students in accordance with the Rehabilitation Act of 1973 and the Americans with Disabilities (ADA) act of 1990. Accommodations are made on a case-by-case basis. Students with special needs are encouraged to contact the Disability Services Coordinator as early as possible. Early notice is required to prepare for and provide special accommodations by the first week of class. It is the student's responsibility to provide the necessary documentation to the Disability Services Coordinator prior to receiving accommodations.

Title IX The College prohibits Sexual Misconduct and is committed to the timely and fair resolution of Sexual Misconduct cases. The College encourages prompt reporting of all types of Sexual Misconduct. The College has defined Sexual Misconduct as any unwelcome conduct of a sexual nature. The following persons may be contacted regarding Title IX issues: Title IX Coordinator (254-442-5022), Dean of Students (254-442-5173), Provost (325-994-4401) or any counselor.

HB 1508 For students in this course who may have a criminal background, please be advised that the background could keep you from being licensed by the State of Texas. If you have a question about your background and licensure, please speak with your faculty member or the department chair. You also have the right to request a criminal history evaluation letter from the applicable licensing agency. (Applicable to courses in programs that lead to state licensing.)

Dual Credit Course Statements

Student Conduct, Notices and Course Policies Dual credit students will comply with all enrollment, attendance, and financial and course policies by Cisco College and their high school. Policies regarding disclosure of information regarding student performance, withdrawing from a class, and student support services may be found on the Cisco College Dual credit webpage.

Course Content Dual credit courses are more challenging than high school courses and expect students to complete work on par with any other college student, demonstrate maturity and openness to new and varied ideas. Student information, attendance, and performance/grades will only be discussed with the student.