

Administrative Master Syllabus

Course Information

Course Title	Mathematics for Business and Social Sciences
Course Prefix, Num. and Title	MATH 1324
Division	Math and Physical Sciences
Department	Math
Course Type	Academic WCJC Core Course
Course Catalog 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.
Pre-Requisites	TSI Math requirements met or concurrently enrolled in NCBM 0224
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	3:3:0
Lab/Other Hours	
Equated Pay Hours	3
Lab/Other Hours Breakdown: Lab Hours	0
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Department Head:		
Division Chair:		8-2-2024
VPI:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Unit 1: Equations and Graphs

- 1.2 Polynomials
- 1.6 First Degree Equations
- 1.7 Quadratic Equations
- 2.1 Graphs
- 2.2 Equations of Lines

Unit 2: Functions

- 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

Unit 3: Exponential and Logarithmic Functions; Financial Math

- 4.1 Exponential Functions
- 4.3 Logarithmic Functions
- 4.4 Logarithmic and Exponential Equations
- 5.1 Simple and compound Interest
- 5.2 Annuities, Future Value and Sinking Funds
- 5.3 Consumer Loans and Amortization

Unit 4: Matrices and Linear Programming

- 6.1 Systems of Two Linear Equations in Two Variables
- 6.4 Basic Matrix Operations
- 6.5 Matrix Products and Inverses
- 7.1 Graphing Linear Inequalities in Two Variables
- 7.2 Linear Programming: The Graphical Method
- 7.3 Applications of Linear Programming

Unit 5: Probability

- 8.3 Introduction to Probability
- 8.4 Basic Concepts of Probability
- 8.5 Conditional Probability and Independent Events
- 9.1 Probability Distributions and Expected Value

Course Learning Outcomes:**Learning Outcomes – 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 application to solve real-world problems.

Methods of Assessment:

Final Exam (Required)

Other Methods of Assessment:

- Hour Exams
- Homework
- Quizzes
- Short Answer
- Discussion Board
- Participation
- Projects

Required text(s), optional text(s) and/or materials to be supplied by the student:

“Mathematics with Applications” by Lial et al, Pearson, current edition

Students must have computer access to the WCJC website, their WCJC student email and online accounts. WCJC has open computer labs, with internet access, on all campuses for students to use.

Suggested Course Maximum:

35

List any specific or physical requirements beyond a typical classroom required to teach the course.

None

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

- A. Final Exam 15-30%
- B. Other Course Requirements 70-85%

- A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = 59 or below



Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
 - Critical Thinking
 - Communication
 - Empirical & Quantitative Skills
 - Teamwork
 - Social Responsibility
 - Personal Responsibility
- WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist

Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1324 – Mathematics for Business and Social Sciences

Core Objective:

Critical Thinking Skills—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems. (SLO #1)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student’s written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1324 – Mathematics for Business and Social Sciences

Core Objective:

Communication Skills—to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems. (SLO #1)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student’s written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
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Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1324 – Mathematics for Business and Social Sciences

Core Objective:

Empirical and Quantitative Skills—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

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