

Administrative Master Syllabus

Course Information

Course Title	College Algebra
Course Prefix, Num. and Title	MATH 1314
Division	Math & Physical Sciences
Department	Mathematics
Course Type	Academic WCJC Core Course
Course Catalog Description	In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included.
Pre-Requisites	Meet TSI college-readiness standard for Mathematics; or concurrently enrolled in NCBM 0314
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:		
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 Inequalities

- 1.1 Graphing and Graphing Utilities
- 1.2 Linear Equations and Rational equations
- 1.4 Complex Numbers
- 1.5 Quadratic Equations
- 1.6 Other Types of Equations
- 1.7 Linear Inequalities and Absolute Value Inequalities

Unit 2: Functions and Graphs

- 2.1 Basics of Functions and Their Graphs
- 2.2 More on Functions and Their Graphs
- 2.3 Linear Functions and Slope
- 2.5 Transformations of Functions
- 2.6 Combinations of Functions; Composition of Functions
- 2.7 Inverse Functions

Unit 3: Polynomial and Rational Functions

- 3.1 Quadratic Functions
- 3.2 Polynomial Functions and Their Graphs
- 3.3 Dividing Polynomials; Remainder and Factor Theorems
- 3.4 Zeros of Polynomial Functions
- 3.5 Rational Functions and Their Graphs

Unit 4: Exponential and Logarithmic Functions; Systems of Equations; Matrices

- 4.1 Exponential Functions
- 4.2 Logarithmic Functions
- 4.3 Properties of Logarithms
- 4.4 Exponential and Logarithmic Equations
- 5.1 Systems of Linear Equations in Two Variables
- 6.3 Matrix Solutions to Linear Systems
- 6.5 Determinants and Cramer's Rule

Course Learning Outcomes:**Learning Outcomes – Upon successful completion of this course, students will:**

1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses.
2. Recognize and apply polynomial, rational, radical, exponential and logarithmic functions and solve related equations.
3. Apply graphing techniques.
4. Evaluate all roots of higher degree polynomial and rational functions.
5. Recognize, solve and apply systems of linear equations using matrices.

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:

"College Algebra" by Robert Blitzer, Pearson, 8th 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 1314 College Algebra

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	Recognize and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses. (SLO #2)	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 1314 College Algebra

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	Recognize and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses. (SLO #2)	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 1314 College Algebra

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.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Recognize and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses. (SLO #2)	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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