

MATH90 : Intermediate Algebra for BSTEM

General Information

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Attachments:	DE Addendum_MATH_90 COR 10:11:2023 CoDE 11:28:2023.pdf
Course Code (CB01) :	MATH90
Course Title (CB02) :	Intermediate Algebra for BSTEM
Department:	MATH
Proposal Start:	Fall 2025
TOP Code (CB03) :	(1701.00) Mathematics, General
CIP Code:	(27.0101) Mathematics, General.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	Yes
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000602418
Curriculum Committee Approval Date:	11/27/2024
Board of Trustees Approval Date:	01/21/2025
Last Cyclical Review Date:	11/24/2024
Course Description and Course Note:	<p>MATH 90 is an Intermediate Algebra course to prepare students for success in transfer-level Precalculus, Business Calculus, and College Algebra courses. Students explore fundamental laws, curve plotting, linear equations, fractional exponents, quadratic equations and inequalities, radical and rational expressions and equations, factoring, functions and inverse functions, algebra of functions, graphs of functions, systems of linear and nonlinear equations and inequalities, and exponential and logarithmic functions. MATH 90 is intended for students considering a major in BSTEM (business, science, technology, engineering, and math). Note: This course may not be taken for credit by students who have completed MATH 90+, 101, 118, 120, 220A, 220B or 220S. A maximum of 6 units will be granted for MATH 90 and any of the following courses: MATH 119, 219A, 219B, 219C, 146, 246A, or 246B. A maximum of 8 units will be granted for MATH 90 and either of the following: MATH 30, 30+, 130 or 131.</p>
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none">Credit
Mode of Delivery:	No value
Author:	No value
Course Family:	No value

Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none">Mathematics
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

One level below transfer.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Local GE Requirement

Transferability

Not transferable

Transferability Status

Not transferable

Units and Hours

Summary

Minimum Credit Units (CB07)	6
Maximum Credit Units (CB06)	6
Total Course In-Class (Contact) Hours	108
Total Course Out-of-Class Hours	216
Total Student Learning Hours	324

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience Education

Status (CB10)

Weekly Student Hours

	In Class
Lecture Hours	6

Out of Class
12

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54

Laboratory Hours	0	0
Studio Hours	0	0

Course In-Class (Contact) Hours	
Lecture	108
Laboratory	0
Studio	0
Total	108

Course Out-of-Class Hours	
Lecture	216
Laboratory	0
Studio	0
Total	216

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

Advisory

ABSE121 - Basic Algebra Review (in-development)

Objectives

- Solve equations and inequalities in one-variable including using coefficients represented by letters.
- Identify the effects on a graph by changing part of a function.
- Solve quadratic equations by graphing, by factoring, square roots, and completing the square.
- Utilize linear and quadratic equations to solve industry related problems.
- Develop fluency in algebraic terminology.

Entry Standards

Entry Standards	Description
No value	No value

Course Limitations

Cross Listed or Equivalent Course

Description

No value

No value

Specifications

Methods of Instruction

Methods of Instruction

Lecture

Methods of Instruction

Discussion

Methods of Instruction

Multimedia

Methods of Instruction

Collaborative Learning

Methods of Instruction

Presentations

Out of Class Assignments

- Homework (e.g. problems sets related to course content)
- Online assignments (e.g. problems sets related to course content)

Methods of Evaluation

Rationale

In-Class Activity (answering journal prompt, group activity)

Group work

Exam/Quiz/Test

Quizzes

Exam/Quiz/Test

Five to eight examinations are required

Exam/Quiz/Test

A comprehensive final examination is required

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
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No Value	No Value	No Value	No Value	No Value
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Other Instructional Materials (i.e. OER, handouts)

Description	Openstax Intermediate Algebra
Author	Lynn Marecek, Andrea Honeycutt Mathis
Citation	ISBN: 978-1-975076-49-8
Online Resource(s)	No value

Learning Outcomes

Course Objectives

Solve absolute value equations and inequalities.

Solve linear equations and compound inequalities.

Perform operations with polynomials.

Simplify complex fractions.

Perform operations with radical expressions.

Simplify expressions with rational exponents.

Solve rational equations.

Solve equations with radicals.

Find the equation of a line parallel or perpendicular to a given line.

Solve a system of linear equations using elimination substitution.

Solve systems of linear inequalities.

Find the composition of two functions.

Solve applied problems.

Solve quadratic equations with real and complex solutions.

Find the inverse of a function.

Use the properties of logarithms to simplify and expand expressions.

Solve logarithmic and exponential equations.

Graph parabolas and circles centered at any point.

Graph functions (linear, quadratic, exponential, logarithmic).

SLOs

Solve various types of equations and inequalities and produce graphs of one or two variables, including various types of algebraic and transcendental functions.

Expected Outcome Performance: 70.0

Incorporate academic strategies and mindset in planning and self-assessment of mathematical success.

Expected Outcome Performance: 70.0

Formulate mathematical models for a variety of real-world phenomena and communicate mathematical solutions clearly and effectively.

Expected Outcome Performance: 70.0

ILOs
Core ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.

Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

ILOs
General Education apply techniques of analysis and critical thinking to critique real world and theoretical topics and issues

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

The Real Number System (3 hours)

- Sets and the real number system
- Equality and properties of real numbers
- Inequalities and graphs of sets of real numbers
- Arithmetic of real numbers

Equations and Inequalities (10 hours)

- Linear equations and their solutions
- Applications
- Formulas and literal equations
- Absolute value equations
- Linear inequalities
- Inequalities with absolute values

Graphs of Lines, Equations of Lines, and Variation (10 hours)

- The rectangular coordinate system
- The slope of a line
- Equations of lines
- Graphs of linear inequalities in two variables
- Introduction to functions
- The algebra of functions, composition of functions
- Translations and reflections of functions
- Proportion and variation

Systems of Equations and Inequalities (8 hours)

- Solution by graphing
- Solution by substitution
- Solution by elimination
- Solution of three equations in three variables
- Applications
- Systems of linear inequalities

Exponents, Polynomials, and Factoring (13 hours)

- Exponents and scientific notation
- Adding and subtracting polynomials
- Multiplying polynomials and dividing polynomials
- The greatest common factor and factoring by grouping
- The difference of two squares; the sum and difference of two cubes
- Factoring trinomials

- Solving equations by factoring
- Applications

Rational Expressions (13 hours)

- Simplifying rational expressions
- Multiplying and dividing rational expressions
- Adding and subtracting rational expressions
- Complex fractions
- Equations containing rational expressions
- Applications
- Graph rational functions

Rational Exponents and Radicals (11 hours)

- Rational exponents
- Radical expressions
- Adding and subtracting radical expressions
- Multiplying and dividing radical expressions
- Solving equations with radicals
- Applications of radicals
- Complex numbers

Quadratic Equations (9 hours)

- Completing the square
- Quadratic formula
- The discriminant and its applications
- Equations quadratic in form
- Non-linear inequalities of one variable

Exponential and Logarithmic Functions (11 hours)

- One-to-one functions
- Inverse functions
- Exponential functions
- Logarithmic functions
- Properties of logarithms
- Common and natural logarithms
- Exponential equations and change of base
- Solving logarithmic equations
- Applications

The Conic Sections (4 hours)

- Parabolas
- Circles

Metacognition and Affective Domain (16 hours)

- Study plans
- Mindset (growth, resilience, hardiness and grit)
- Reading and cognitive techniques
- Study and test taking skills

Total hours: 108

Additional Information

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Is it possible this course will have a material fee?

No Value

I have contacted my library liaison (<https://campusguides.glendale.edu/faculty/liaisons>):

No Value

What term(s) will this course be offered?

No Value

Will any additional resources be needed for this course? (Click all that apply)

No Value

If additional resources are needed, add a brief description and cost in the box provided.

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liaison?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value