Washtenaw Community College Comprehensive Report

MTH 176 College Algebra
Effective Term: Spring/Summer 2020

Course Cover

Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 176
Org Number: 12200
Full Course Title: College Algebra
Transcript Title: College Algebra
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Consultation with all departments affected by this course is required.
Outcomes/Assessment
Other:
Rationale: Update due to assessment.
Proposed Start Semester: Fall 2019
Course Description: This course provides students with the necessary background for pre-calculus. Topics include graphs of functions including transformations, function composition, variation, polynomial functions of degree two and higher, polynomial and synthetic division, roots of polynomials, complex numbers, rational functions and equations, non-linear equations and inequalities, inverse functions, exponential functions equations and models, logarithmic functions equations and models and applications. A graphing calculator is required for this course. See the time schedule for the current brand and model. Successful completion of this course with a minimum grade of "C" will raise your Academic Math level to 5.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 4

Requisites

General Education

Degree Attributes

Assoc in Applied Sci - Area 3
Assoc in Science - Area 3
Assoc in Arts - Area 3
MACRAO Science & Math

Michigan Transfer Agreement - MTA

MTA Mathematics

Request Course Transfer

Proposed For:

Central Michigan University
Eastern Michigan University
Ferris State University
Grand Valley State University
Jackson Community College
Lawrence Tech
Michigan State University
Oakland University
University of Detroit - Mercy
University of Michigan
Wayne State University
Western Michigan University

Student Learning Outcomes

1. Solve linear, quadratic, rational, radical, exponential and logarithmic equations and inequalities.
   Assessment 1
   Assessment Tool: Outcome-related common departmental exam questions
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students or a random sample of all students with a maximum of 100 students.
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students must score at least 70% on the common exam questions.
   Who will score and analyze the data: Full-time math faculty

2. Graph linear, quadratic, rational, radical, exponential and logarithmic equations and inequalities.
   Assessment 1
   Assessment Tool: Outcome-related common departmental exam questions
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students or a random sample of all students with a maximum of 100 students.
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students must score at least 70% on the common exam questions.
   Who will score and analyze the data: Full-time math faculty

3. Perform linear, quadratic, rational, radical, exponential and logarithmic functional operations.
   Assessment 1
   Assessment Tool: Outcome-related common departmental exam questions
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students or a random sample of all students with a maximum of 100 students.
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students must score at least 70% on the common exam questions.
   Who will score and analyze the data: Full-time math faculty

4. Translate and solve linear, quadratic, rational, radical, exponential and logarithmic applications.
   Assessment 1
   Assessment Tool: Outcome-related common departmental exam questions
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students or a random sample of all students with a maximum of 100 students.
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   Who will score and analyze the data: Full-time math faculty

Course Objectives

1. Write linear equations given the slope and a point or given two points.
2. Create a linear model for a real world application.
3. Interpret, solve and check applications involving linear models.
4. Perform the basic operations of addition, subtraction, multiplication and division with functions.
5. Graph linear functions.
6. Graph polynomial functions.
7. Identify the parent function, and list the transformations of the parent function.
8. Recognize and evaluate a composite function.
9. Add, subtract, multiply and divide polynomials.
10. Graph rational functions, and identify the horizontal and vertical asymptotes.
11. Find the domain and range of a function.
12. Find the inverse of a function.
13. Solve radical, polynomial, rational and absolute value equations.
14. Use a graphing calculator to find the intervals where a function is increasing and where it is decreasing.
15. Use a graphing calculator to find the relative maxima and relative minima of a function.
16. Solve and graph non-linear inequalities,
17. Solve logarithmic and exponential equations.
18. Interpret, solve and check logarithmic and exponential applications.
19. Solve linear and non-linear systems of equations.
20. Use matrices to solve linear systems.
21. Use a graphing calculator to solve a linear system.
22. Interpret, solve and check applications of linear systems.

New Resources for Course

Course Textbooks/Resources

Textbooks

Larson/Hostetlar. *Precalculus with limits*, Latest Edition ed. Cengage, 2018
Manuals
Periodicals
Software

Equipment/Facilities

Level I classroom
Testing Center
Data projector/computer

Reviewer	Action	Date
Faculty Preparer:		
Michael Quail	*Faculty Preparer*	*Sep 26, 2019*
Department Chair/Area Director:		
Lisa Manoukian	*Recommend Approval*	*Sep 26, 2019*
Dean:		
Victor Vega	*Request Conditional Approval*	*Sep 26, 2019*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Oct 24, 2019*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Nov 08, 2019*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Nov 08, 2019*

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Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
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Assoc in Arts - Area 3

MACRAO Science & Math

Michigan Transfer Agreement - MTA

MTA Mathematics

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Solve equations and inequalities.

Assessment 1

Assessment Tool: Common departmental exam questions for all outcomes given to all students and scored for a random sampling of students with a written report and analysis of results every three years.

Assessment Date: Fall 2018

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: Random sample of all students with a maximum of 100 students.

How the assessment will be scored: Common exam questions will be collected and scored for all students by a subcommittee of the full-time faculty.

Standard of success to be used for this assessment: 70% of students must score at least 70% on the common exam questions.

Who will score and analyze the data: A subcommittee of the full-time math faculty.

2. Graph equations and inequalities.

Assessment 1

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Who will score and analyze the data: A subcommittee of the full-time math faculty.

3. Perform functional operations.

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4. Translate and solve applications.

Assessment 1

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Dean:		
Kristin Good	*Recommend Approval*	*Oct 25, 2016*
Curriculum Committee Chair:		
David Wooten	*Recommend Approval*	*Nov 28, 2016*
Assessment Committee Chair:		
Michelle Garey	*Recommend Approval*	*Dec 06, 2016*

Vice President for Instruction:

Bill Abernethy *Approve* *Dec 06, 2016*