Washtenaw Community College Comprehensive Report

MTH 149 Functional Math for Elementary Teachers II
Effective Term: Spring/Summer 2024

Course Cover

College: Math, Science and Engineering Tech
Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 149
Org Number: 12200
Full Course Title: Functional Math for Elementary Teachers II
Transcript Title: Func Math for Elem Teach II
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:
Pre-requisite, co-requisite, or enrollment restrictions
Outcomes/Assessment
Objectives/Evaluation
Rationale: Students don't need an understanding of level 3 concepts when they take this course since we start from the very basics in math. A level 2 will be sufficient. I also need to add Michigan Department of Education standards to the student learning outcomes and change some of the objectives slightly.
Proposed Start Semester: Winter 2024
Course Description: In this course, students will learn additional mathematical concepts and problem-solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for math teachers; rather, it provides the general mathematical background for teachers of all subjects. Topics include probability, an introduction to statistics, introductory geometry, congruence, similarity and measurement concepts. This is the second course in a two-course sequence.

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 2

Requisites

Prerequisite

MTH 148 minimum grade "C"

General Education

MACRAO

MACRAO Science & Math
MACRAO Sci & Math Elementary Education

General Education Area 3 - Mathematics

Assoc in Arts - Area 3
for Elementary and Early Childhood

Request Course Transfer

Proposed For:

Eastern Michigan University
Ferris State University
Grand Valley State University
Jackson Community College
Michigan State University
Oakland University
University of Michigan
Wayne State University
Western Michigan University
Central Michigan University

Student Learning Outcomes

1. Solve problems using concepts related to probability, descriptive statistics and inferential statistics. (MDE 3-6 Standard: M11)

   Assessment 1

   Assessment Tool: Outcome-related common test questions
   Assessment Date: Winter 2026
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher
   Who will score and analyze the data: MTH 149 course leader

2. Understand the major concepts of Euclidean geometry with a focus on coordinate and transformational concepts. (MDE PK-3 Standard: M5, M7, M8)

   Assessment 1

   Assessment Tool: Outcome-related common test questions
   Assessment Date: Winter 2026
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher
   Who will score and analyze the data: MTH 149 course leader

3. Apply the process of measurement to two-and three-dimensional objects using non-standard, English, and metric units. (MDE PK-3 Standard: M6, M7, M8)

   Assessment 1

Assessment Tool: Outcome-related common test questions
Assessment Date: Winter 2026
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-created rubric
Standard of success to be used for this assessment: 75% of students will score 75% or higher
Who will score and analyze the data: MTH 149 course leader

4. Practice high leverage core teaching practices and examine how they can be helpful in teaching Pre-Kindergarten through sixth grade (PK-6). (MDE PK-3 Standards: M8, M13. MDE 3-6 Standards: M5-M11)

Assessment 1

Assessment Tool: Teaching demonstration project and analysis assignments
Assessment Date: Winter 2026
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-developed rubric
Standard of success to be used for this assessment: 75% of students will score 75% or higher
Who will score and analyze the data: MTH 149 course leader

Course Objectives

1. Identify the events, outcomes, and sample space for an experiment.
2. Create and use a probability tree to solve problems relating to counting and chance.
3. Use the multiplication and addition rule to solve probability problems.
4. Determine if events in an experiment are impossible, certain, or have equally likely outcomes.
5. Represent and interpret data through the following graphs: bar, line, frequency table, stem-and-leaf, histogram, circle, and box-and-whisker.
6. Compute the measures of central tendency (mean, median, and mode) for a data set and interpret their meaning.
7. Compute the measures of dispersion (variation, mean deviation, and range) for a data set and interpret them.
8. Identify, illustrate, and name the following 2-dimensional figures: lines, parallel lines, perpendicular lines, polygons, angles in polygons, angles formed by parallel and perpendicular lines, and angles in tessellations.
9. Use angle properties to find missing angle measures in 2-dimensional pictures involving lines, polygons, and tessellations.
10. Identify, illustrate, and name these 3-dimensional figures: prisms, pyramids, cylinders, cones, and spheres.
11. Determine if two polygons are congruent and/or similar using congruence and similarity properties.
12. Use congruence and similarly properties to solve for missing sides and angles in a polygon.
13. Perform the following basic Euclidean constructions: line segments, angles, perpendicular lines, angle and line bisectors, and parallel lines.
14. Convert English units to metric units and metric units to English units.
15. Calculate the area and perimeter of the following polygons: triangles, parallelograms, trapezoids.
16. Calculate the area and circumference of a circle.
17. Calculate the surface area and volume of prisms, pyramids, cones, cylinders, and spheres.
18. Lead a group discussion at an intermediate level.
19. Explain and model content, practices, and strategies related to the PK-6 classroom at an intermediate level.
20. Elicit and interpret individual students' thinking at an intermediate level.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Nichole Klemmer	*Faculty Preparer*	*Jul 20, 2023*
Department Chair/Area Director:		
Nichole Klemmer	*Recommend Approval*	*Jul 20, 2023*
Dean:		
Tracy Schwab	*Recommend Approval*	*Jul 27, 2023*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Jan 24, 2024*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Jan 25, 2024*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Jan 27, 2024*

Washtenaw Community College Comprehensive Report

MTH 149 Functional Math for Elementary Teachers II
Effective Term: Fall 2022

Course Cover

College: Math, Science and Engineering Tech
Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 149
Org Number: 12200
Full Course Title: Functional Math for Elementary Teachers II
Transcript Title: Func Math for Elem Teach II
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Course Change
Change Information:
Outcomes/Assessment
Objectives/Evaluation
Rationale: The State of Michigan changed the teacher education requirements and now require all teacher education courses (including content-based ones, like MTH 149) to incorporate "high leverage core teaching practices" as part of their outcomes.
Proposed Start Semester: Spring/Summer 2022
Course Description: This is the second course in a two-course sequence. In this course, students will learn additional mathematical concepts and problem-solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for math teachers; rather, it provides the general mathematical background for teachers of all subjects. Topics include probability, an introduction to statistics, introductory geometry, congruence, similarity and measurement concepts.

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 3

Requisites

Prerequisite
MTH 148 minimum grade "C"

General Education

MACRAO
MACRAO Science & Math
MACRAO Sci & Math Elementary Education
General Education Area 3 - Mathematics
Assoc in Arts - Area 3
for Elementary and Early Childhood

Request Course Transfer

Proposed For:
Eastern Michigan University
Ferris State University
Grand Valley State University
Jackson Community College
Michigan State University
Oakland University
University of Michigan
Wayne State University
Western Michigan University
Central Michigan University

Student Learning Outcomes

1. Solve problems using concepts related to probability, descriptive statistics and inferential statistics.
   Assessment 1
   Assessment Tool: Outcome-related common test questions
   Assessment Date: Spring/Summer 2024
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
   Who will score and analyze the data: MTH 149 course leader

2. Understand the major concepts of Euclidean geometry with a focus on coordinate and transformational concepts.
   Assessment 1
   Assessment Tool: Outcome-related common test questions
   Assessment Date: Spring/Summer 2024
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
   Who will score and analyze the data: MTH 149 course leader

3. Apply the process of measurement to two-and three-dimensional objects using non-standard, English, and metric units.
   Assessment 1

Assessment Tool: Outcome-related common test questions
Assessment Date: Spring/Summer 2024
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-created rubric
Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
Who will score and analyze the data: MTH 149 course leader

4. Practice high leverage core teaching practices and examine how they can be helpful in teaching Pre-Kindergarten through sixth grade (PK-6).

Assessment 1

Assessment Tool: Teaching demonstration project and analysis assignments on Blackboard
Assessment Date: Spring/Summer 2024
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-created rubric
Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
Who will score and analyze the data: MTH 149 course leader

Course Objectives

1. Identify the events, outcomes, and sample space for an experiment.
2. Create and use a probability tree to solve problems relating to counting and chance.
3. Use the multiplication and addition rule to solve probability problems.
4. Determine if events in an experiment are impossible, certain, or have equally likely outcomes.
5. Represent and interpret data through the following graphs: bar, line, frequency table, stem-and-leaf, histogram, circle, and box-and-whisker.
6. Compute the measures of central tendency (mean, median, and mode) for a data set and interpret their meaning.
7. Compute the measures of dispersion (variation, standard deviation, and range) for a data set and interpret them.
8. Identify, illustrate, and name the following 2-dimensional figures: lines, parallel lines, perpendicular lines, polygons, angles in polygons, angles formed by parallel and perpendicular lines, and angles in tessellations.
9. Use angle properties to find missing angle measures in 2-dimensional pictures involving lines, polygons, and tessellations.
10. Identify, illustrate, and name these 3-dimensional figures: prisms, pyramids, cylinders, cones, and spheres.
11. Determine if two polygons are congruent and/or similar using congruence and similarity properties.
12. Use congruence and similarly properties to solve for missing sides and angles in a polygon.
13. Perform the following basic Euclidean constructions: line segments, angles, perpendicular lines, angle and line bisectors, and parallel lines.
14. Convert English units to metric units and metric units to English units.
15. Calculate the area and perimeter of the following polygons: triangles, parallelograms, trapezoids.
16. Calculate the area and circumference of a circle.
17. Calculate the surface area and volume of prisms, pyramids, cones, cylinders, and spheres.
18. Lead a group discussion.
19. Explain and model content, practices, and strategies related to the PK-6 classroom.
20. Elicit and interpret individual students' thinking.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Nichole Klemmer	*Faculty Preparer*	*Jan 10, 2022*
Department Chair/Area Director:		
Lawrence David	*Recommend Approval*	*Feb 07, 2022*
Dean:		
Victor Vega	*Recommend Approval*	*Feb 08, 2022*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Mar 08, 2022*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Mar 09, 2022*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Mar 10, 2022*

Washtenaw Community College Comprehensive Report

MTH 149 Functional Math for Elementary Teachers II
Effective Term: Winter 2022

Course Cover

College: Math, Science and Engineering Tech
Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 149
Org Number: 12200
Full Course Title: Functional Math for Elementary Teachers II
Transcript Title: Func Math for Elem Teach II
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:
Other:
Rationale: In an effort to review my course at the same time as the course assessment, I am revisiting the details of the MTH 149 syllabus.
Proposed Start Semester: Fall 2021
Course Description: This course is the second in a two-course sequence presenting the mathematical concepts and problem-solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for math teachers; rather, it provides the general mathematical background for teachers of all subjects. Topics include probability, an introduction to statistics, introductory geometry, congruence, similarity and measurement concepts.

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 3

Requisites

Prerequisite
MTH 148 minimum grade "C"

General Education

MACRAO

MACRAO Science & Math
MACRAO Sci & Math Elementary Education

General Education Area 3 - Mathematics

Assoc in Arts - Area 3
for Elementary and Early Childhood

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Solve problems using concepts related to counting and chance.
   Assessment 1
   Assessment Tool: Outcome-related common test questions
   Assessment Date: Winter 2024
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
   Who will score and analyze the data: MTH 149 course leader

2. Effectively represent and interpret data through graphs and measures of central tendency and dispersion.
   Assessment 1
   Assessment Tool: Outcome-related common test questions
   Assessment Date: Winter 2024
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
   Who will score and analyze the data: MTH 149 course leader

3. Identify, illustrate, and apply various properties of 2- and 3-dimensional figures.
   Assessment 1
   Assessment Tool: Outcome-related common test questions
   Assessment Date: Winter 2024
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-created rubric
   Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
   Who will score and analyze the data: MTH 149 course leader

4. Use the properties of congruence and similarity to solve problems and execute simple constructions.
   Assessment 1
   Assessment Tool: Outcome-related common test questions

Assessment Date: Winter 2024
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-created rubric
Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
Who will score and analyze the data: MTH 149 course leader

5. Use the English and metric systems of measurement to calculate and/or convert measurements: linear, area, perimeter, surface area and volume.

Assessment 1

Assessment Tool: Outcome-related common test questions
Assessment Date: Winter 2024
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: Departmentally-created rubric
Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4, out of 4 possible points (as defined on the rubric)
Who will score and analyze the data: MTH 149 course leader

Course Objectives

1. Identify the events, outcomes, and sample space for an experiment.
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15. Calculate the area and perimeter of the following polygons: triangles, parallelograms, trapezoids.
16. Calculate the area and circumference of a circle.
17. Calculate the surface area and volume of prisms, pyramids, cones, cylinders, and spheres.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals

Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Nichole Klemmer	*Faculty Preparer*	*Jul 29, 2021*
Department Chair/Area Director:		
Lawrence David	*Recommend Approval*	*Aug 04, 2021*
Dean:		
Victor Vega	*Recommend Approval*	*Aug 10, 2021*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Nov 05, 2021*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Nov 10, 2021*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Nov 12, 2021*