



## Program Guidebook

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### Master of Arts in Mathematics Education (Middle Grades)

*The Master of Arts in Mathematics Education (Middle Grades) is a competency-based degree program that prepares already licensed teachers both to be licensed to teach mathematics in middle grades and to develop significant skills in mathematics curriculum development, design, and evaluation. All work in this degree program is online and includes Mathematics Content, Mathematics Education and Research Fundamentals. All students complete a culminating Teacher Work Sample.*

## Understanding the Competency-Based Approach

Practically speaking, how do competency-based programs like those offered at Western Governors University (WGU) work? Unlike traditional universities, WGU does not award degrees based on completion of a certain number of credit hours or a certain set of required courses. Instead, you will earn your degree by demonstrating your skills, knowledge, and understanding of important concepts.

Progress through a degree program is governed not by the amount of time you spend in class but by your ability to demonstrate mastery of competencies as you complete required courses. Of course, you will need to engage in learning experiences as you review competencies or develop knowledge and skills in areas in which you may be weak. To help you acquire the knowledge and skills you need to complete your courses and program, WGU provides a rich array of learning resources. Your program mentor will work closely with you to help you understand the competencies required for your program and to help you create a schedule for completing your courses. You will also work closely with course instructors as you engage in each of your courses. As subject matter experts, course instructors will guide you through the content you must master to pass the course assessments.

The benefit of this competency-based system is that enables students who are knowledgeable about a particular subject to make accelerated progress toward completing a degree, even if they lack college experience. You may have gained skills and knowledge of a subject while on the job, accumulated wisdom through years of life experience, or already taken a course on a particular subject. WGU will award your degree based on the skills and knowledge that you possess and can demonstrate—not the number of credits hours on your transcript.

## Accreditation

Western Governors University is the only university in the history of American higher education to have earned accreditation from four regional accrediting commissions. WGU's accreditation was awarded by (1) the Northwest Commission on Colleges and Universities, (2) the Higher Learning Commission of the North Central Association of Colleges and Schools, (3) the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges, and (4) the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. The university's accreditation status is now managed by the Northwest Commission on Colleges and Universities (NWCCU), which reaffirmed WGU's accreditation in February 2017. The WGU Teachers College is accredited by the National Council for Accreditation of Teacher Education (NCATE). The nursing programs are accredited by the Commission on Collegiate Nursing Education (CCNE). The Health Information Management program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). The College of Business programs are accredited by the Accreditation Council for Business Schools and Programs (ACBSP).

## The Degree Plan

The focus of your program is your personalized Degree Plan. The Degree Plan is a detailed blueprint of the courses you will need to complete in order to earn your degree. The Degree Plan also lays out the accompanying learning resources and assessments that compose your program. The list of courses in the Degree Plan is often referred to as the standard path. The amount of time it takes to complete your program depends on both the amount of new information you need to learn and the amount of time you plan to devote each week to study.

Students vary widely in the specific skills and information they need to learn. For example, some students may be highly knowledgeable in a particular subject matter and would not need to engage in new learning opportunities. Other students may find that portions of the program require them to learn new information and that they need to take an online class or participate in a study module to acquire the knowledge and skills needed to fulfill program competencies in that area. Some individuals may be able to devote as little as 15–20 hours per week to the program, while others may need to devote more time. For this reason, pre-assessments are there to help your program mentor form a profile of your prior knowledge and create a personalized Degree Plan.

## How You Will Interact with Faculty

At WGU, faculty serve in specialized roles, and they will work with you individually to provide the guidance, instruction, and support you will need to succeed and graduate. As a student, it is important for you to take advantage of this support. It is key to your progress and ultimate success.

Upon your enrollment, you will be assigned a program mentor—an expert in your field of study who will provide you with regular program-level guidance and support from the day you start until the day you graduate. Your program mentor will set up regular telephone appointments (weekly at first) with you, which you will be expected to keep. The mentor will review program competencies with you and work with you to develop a plan and schedule for your coursework. Your program mentor will serve as your main point of contact throughout your program—helping you set weekly study goals, recommending specific learning materials, telling you what to expect in courses, and keeping you motivated. In addition to regular calls, your program mentor is available to help you resolve questions and concerns as they arise.

For many of the courses at WGU, you will be required to complete performance assessments. These include reports, papers, presentations, and projects that let you demonstrate your mastery of the required competencies. A separate group of faculty members, called evaluators, will review your work to determine whether it meets requirements. Evaluators are also subject matter experts in their field of evaluation. If your assessment needs further work before it “passes,” these evaluators, who review your work anonymously, will provide you with instructional feedback to help you meet evaluation standards and allow you to advance.

## Connecting with Other Mentors and Fellow Students

As you proceed through your Degree Plan, you will have direct contact with multiple faculty members. These communications can take a variety of forms, including participation in one-on-one discussions, chats in the learning communities, and live cohort and webinar opportunities. As a WGU student, you will have access to your own personal MyWGU Student Portal, which will provide a gateway to your courses of study, learning resources, and learning communities where you will interact with faculty and other students.

The learning resources in each course are specifically designed to support you as you develop competencies in preparation for your assessments. These learning resources may include reading materials, videos, tutorials, cohort opportunities, community discussions, and live discussions that are guided by course instructors who are experts in their field. You will access your program community

during your orientation course to network with peers who are enrolled in your program and to receive continued support through professional enrichment and program-specific chats, blogs, and discussions. WGU also provides Student Services associates to help you and your program mentor solve any special problems that may arise.

## Orientation

The WGU orientation course focuses on acquainting you with WGU's competency-based model, distance education, technology, and other resources and tools available for students. You will also utilize WGU program and course communities, participate in activities, and get to know other students at WGU. The orientation course must be completed before you can start your first term at WGU.

## Transferability of Prior College Coursework

Because WGU is a competency-based institution, it does not award degrees based on credits but rather on demonstration of competency. However, if you have completed college coursework at another accredited institution, or if you have completed industry certifications, you may have your transcripts and certifications evaluated to determine if you are eligible to receive some transfer credit. The guidelines for determining what credits will be granted varies based on the degree program. Students entering graduate programs must have their undergraduate degree verified before being admitted to WGU. To review more information in regards to transfer guidelines based on the different degree programs, you may visit the Student Handbook found at the link below and search for "Transfer Credit Evaluation." Within the Teachers College, there may be additional courses to meet state requirements.

[Click here for the Student Handbook](#)

WGU does not waive any requirements based on a student's professional experience and does not perform a "résumé review" or "portfolio review" that will automatically waive any degree requirements. Degree requirements and transferability rules are subject to change in order to keep the degree content relevant and current.

Remember, WGU's competency-based approach lets you take advantage of your knowledge and skills, regardless of how you obtained them. Even when you do not directly receive credit, the knowledge you possess may help you accelerate the time it takes to complete your degree program.

## Continuous Enrollment, On Time Progress, and Satisfactory Academic Progress

WGU is a "continuous enrollment" institution, which means you will be automatically enrolled in each of your new terms while you are at WGU. Each term is six months long. Longer terms and continuous enrollment allow you to focus on your studies without the hassle of unnatural breaks between terms that you would experience at a more traditional university. At the end of every six-month term, you and your program mentor will review the progress you have made and revise your Degree Plan for your next six-month term.

WGU requires that students make measurable progress toward the completion of their degree programs every term. We call this "On-Time Progress," denoting that you are on track and making progress toward on-time graduation. As full-time students, graduate students must enroll in at least 8

competency units each term, and undergraduate students must enroll in at least 12 competency units each term. Completing at least these minimum enrollments is essential to On-Time Progress and serves as a baseline from which you may accelerate your program. We measure your progress based on the courses you are able to pass, not on your accumulation of credit hours or course grades. Every time you pass a course, you are demonstrating that you have mastered skills and knowledge in your degree program. For comparison to traditional grading systems, passing a course means you have demonstrated competency equivalent to a “B” grade or better.

WGU assigns competency units to each course in order to track your progress through the program. A competency unit is equivalent to one semester credit of learning. Some courses may be assigned 3 competency units while others may be as large as 12 competency units.

Satisfactory Academic Progress (SAP) is particularly important to students on financial aid because you must achieve SAP in order to maintain eligibility for financial aid. We will measure your SAP quantitatively by reviewing the number of competency units you have completed each term. In order to remain in good academic standing, you must complete at least 66.67% of the units you attempt over the length of your program—including any courses you add to your term to accelerate your progress. Additionally, during your first term at WGU you must pass at least 3 competency units in order to remain eligible for financial aid. We know that SAP is complex, so please contact a financial aid counselor should you have additional questions. \*Please note: The Endorsement Preparation Program in Educational Leadership is not eligible for federal financial aid.

## Courses

Your Degree Plan includes courses needed to complete your program. To obtain your degree, you will be required to demonstrate your skills and knowledge by completing the assessment(s) for each course. In general there are two types of assessments: performance assessments and objective assessments. Performance assessments contain, in most cases, multiple scored tasks such as projects, essays, and research papers. Objective assessments include multiple-choice items, multiple-selection items, matching, short answer, drag-and-drop, and point-and-click item types, as well as case study and video-based items. Certifications verified through third parties may also be included in your program. More detailed information about each assessment is provided in each course of study.

## External Content & Basic Skills Exams

Western Governors University requires that candidates pass the state-mandated content exam that aligns with their WGU program in addition to a basic skills exam (initial licensure programs only). Specific information regarding required content and basic skills exams required for each program and state can be found in the WGU Student Handbook. In many cases, it is the candidates’ responsibility to register and pay for the required exams and submit their official passing score reports to WGU.

## State Licensure Requirements

Many states have specific licensure requirements that are not part of WGU programs that you will have to fulfill in addition to the degree requirements of your program. These state licensure requirements might include, but are not limited to: subject-specific licensure exams, state-specific teacher performance assessments, course work related to state history, basic skills exams, and background clearances. The WGU Student Handbook outlines the credentialing requirements of each state. Teacher

candidates should consult the applicable section to become familiar with their state's expectations regarding licensure..

## Learning Resources

WGU works with many different educational partners, including enterprises, publishers, training companies, and higher educational institutions, to provide high-quality and effective learning resources that match the competencies you are developing. These vary in type, and may be combined to create the best learning experience for your course. A learning resource can be an e-textbook, online module, study guide, simulation, virtual lab, tutorial, or a combination of these. The cost of most learning resources are included in your tuition and Learning Resource Fee. They can be accessed or enrolled for through your courses. Some degree-specific resources are not covered by your tuition, and you will need to cover those costs separately. WGU also provides a robust library to help you obtain additional learning resources, as needed.

Mobile Compatibility:

The following article provides additional details about the current state of mobile compatibility for learning resources at WGU. It includes a list that can be referenced to determine the mobile friendliness of all core course materials used in a program.

[Student Handbook article: Can I use my mobile device for learning resources?](#)

## Standard Path

As previously mentioned, competency units (CUs) have been assigned to each course in order to measure your academic progress. If you are an undergraduate student, you will be expected to enroll in a minimum of 12 competency units each term. Graduate students are expected to enroll in a minimum of 8 competency units each term. A standard plan for a student for this program who entered WGU without any transfer units would look similar to the one on the following page. Your personal progress can be faster, but your pace will be determined by the extent of your transfer units, your time commitment, and your determination to proceed at a faster rate.

## Standard Path *for* Master of Arts in Mathematics Education (Middle Grades)

Course Description	CUs	Term
College Algebra	3	1
Finite Mathematics	2	1
Trigonometry and Precalculus	2	1
Mathematics Learning and Teaching	2	1
College Geometry	2	2
Teaching in the Middle School	2	2
Probability and Statistics I	2	2
Middle School Mathematics: Content Knowledge	1	2
Calculus I	2	2
Algebra for Secondary Mathematics Teaching	2	3
Mathematics History and Technology	2	3
Research Foundations	2	3
Research Questions and Literature Review	2	3
MA, Mathematics Education (5-9) Teacher Performance Assessment	6	4

### Changes to Curriculum

WGU publishes an Institutional Catalog, which describes the academic requirements of each degree program. Although students are required to complete the program version current at the time of their enrollment, WGU may modify requirements and course offerings within that version of the program to maintain the currency and relevance of WGU's competencies and programs. As these changes are implemented, WGU will ensure that the length of the student's degree program (i.e., total competency unit requirements) will not increase and that competency units already earned will be applied to the updated program version. When program requirements are updated, students readmitting after withdrawal from the university will be expected to re-enter into the most current catalog version of the program.

# Areas of Study for Master of Arts in Mathematics Education (Middle Grades)

The following section includes the areas of study in the program, with their associated courses. Your specific learning resources and level of instructional support will vary based on the individual competencies you bring to the program and your confidence in developing the knowledge, skills, and abilities required in each area of the degree. The Degree Plan and learning resources are dynamic, so you need to review your Degree Plan and seek the advice of your mentor regarding the resources before you purchase them.

## General Education

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### College Algebra

This course provides further application and analysis of algebraic concepts and functions through mathematical modeling of real-world situations. Topics include: real numbers, algebraic expressions, equations and inequalities, graphs and functions, polynomial and rational functions, exponential and logarithmic functions, and systems of linear equations.

*This course covers the following competencies:*

- *The graduate simplifies and factors polynomial expressions, and solves polynomial equations.*
- *The graduate solves systems of linear equations and their related applications.*
- *The graduate simplifies rational, radical, and quadratic expressions, solves corresponding equations, and extends this knowledge to the study of functions.*
- *The graduate combines functions, finds inverse functions, solves exponential and logarithmic equations and functions.*
- *The graduate classifies and performs operations on real numbers; solves linear equations and inequalities; connects a linear equation to its graph; and identifies a function.*

## Mathematics Content

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### Finite Mathematics

Finite Mathematics covers the knowledge and skills necessary to apply discrete mathematics and properties of number systems to model and solve real-life problems. Topics include sets and operations; prime and composite numbers; GCD and LCM; order of operations; ordering numbers; mathematical systems including modular arithmetic, arithmetic and geometric sequences, ratio and proportion, subsets of real numbers, logic and truth tables, graphs, trees and networks, and permutation and combination. There are no prerequisites for this course.

*This course covers the following competencies:*

- *The graduate represents numbers in different forms, recognizes relationships among numbers and number systems, deduces the meanings of operations, and demonstrates a conceptual understanding of numbers.*
- *The graduate applies the fundamental ideas of discrete mathematics including logic, set theory, and graph theory in formulating and solving problems.*
- *The graduate demonstrates computational proficiency with real numbers and recognizes the properties of the real number system and its subsets.*

### Trigonometry and Precalculus

Trigonometry and Precalculus covers the knowledge and skills necessary to apply trigonometry, complex numbers, systems of equations, vectors and matrices, and sequences and series, and to use appropriate technology to model and solve real-life problems. Topics include degrees; radians and arcs; reference angles and right triangle trigonometry; applying, graphing and transforming trigonometric functions and their inverses; solving trigonometric equations; using and proving



trigonometric identities; geometric, rectangular, and polar approaches to complex numbers; DeMoivre's Theorem; systems of linear equations and matrix-vector equations; systems of nonlinear equations; systems of inequalities; and arithmetic and geometric sequences and series. College Algebra is a prerequisite for this course.

*This course covers the following competencies:*

- *The graduate uses a unit circle to define trigonometric functions and applies these functions to model and solve real-life problems.*
- *The graduate uses systems of equations, systems of inequalities, and matrices to model and solve real-life problems.*
- *The graduate proves trigonometric identities and solves trigonometric equations.*
- *The graduate explores arithmetic and geometric sequences and uses them to model and solve real-life problems.*
- *The graduate applies various representations of complex numbers to solve problems.*
- *The graduate applies trigonometric ratios and triangle formulas to model and solve real-life problems.*

## College Geometry

College Geometry covers the knowledge and skills necessary to use dynamic technology to explore geometry, to use axiomatic reasoning to prove statements about geometry, and to apply geometric models to solve real-life problems. Topics include axiomatic systems, analytic proofs, coordinate geometry, plane and solid Euclidean geometry, non-Euclidean geometries, constructions, transformations, deductive reasoning, and dynamic technology. For candidates enrolled in the MAMEMG program, College Algebra as well as Trigonometry and Precalculus are prerequisites. For candidates enrolled in the MAMES program, Trigonometry and Precalculus is a prerequisite.

*This course covers the following competencies:*

- *The graduate implements geometric construction methods to create objects.*
- *The graduate analyzes the axiomatic nature of Euclidean and non-Euclidean geometries to reflect on geometric reasoning and formal proof.*
- *The graduate examines geometric relationships to analyze congruence, similarity, and transformations.*
- *The graduate applies properties and theorems about circles and circle sectors to solve problems.*
- *The graduate applies algebraic language in representing geometric concepts to solve two-dimensional problems.*
- *The graduate applies geometric properties to solve problems.*

## Probability and Statistics I

Probability and Statistics I covers the knowledge and skills necessary to apply basic probability, descriptive statistics, and statistical reasoning, and to use appropriate technology to model and solve real-life problems. It provides an introduction to the science of collecting, processing, analyzing, and interpreting data, including representations, constructions and interpretation of graphical displays (e.g., box plots, histograms, cumulative frequency plots, scatter plots). Topics include creating and interpreting numerical summaries and visual displays of data; regression lines and correlation; evaluating sampling methods and their effect on possible conclusions; designing observational studies, controlled experiments, and surveys; and determining probabilities using simulations, diagrams, and probability rules. Candidates should have completed a course in College Algebra before engaging in this course.

*This course covers the following competencies:*

- *The graduate evaluates the sampling methods used in studies including the effect they have on conclusions that can be made.*
- *The graduate evaluates the relationship between two variables through the creation and interpretation of numerical summaries and visual displays.*
- *The graduate determines the probability of events using simulations, diagrams, and probability rules.*
- *The graduate designs and conducts observational studies, controlled experiments, and surveys to explore population*

*characteristics.*

## Calculus I

Calculus I is the study of rates of change in relation to the slope of a curve and covers the knowledge and skills necessary to use differential calculus of one variable and appropriate technology to solve basic problems. Topics include graphing functions and finding their domains and ranges; limits, continuity, differentiability, visual, analytical, and conceptual approaches to the definition of the derivative; the power, chain, and sum rules applied to polynomial and exponential functions, position and velocity; and L'Hopital's Rule. Candidates should have completed a course in Pre-Calculus before engaging in this course.

*This course covers the following competencies:*

- *The graduate applies differentiation in various ways to solve problems.*
- *The graduate applies integration techniques to solve problems.*
- *The graduate demonstrates a conceptual understanding of limits and finds limits of functions.*
- *The graduate demonstrates a conceptual understanding of and solves problems involving continuity, and defines the relationship of continuity to differentiability and integrability.*
- *The graduate demonstrates a conceptual understanding of differentiation and applies differentiation techniques to solve problems and aid in function graphing.*

## Mathematics Education

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### Mathematics Learning and Teaching

Mathematics Learning and Teaching will help you develop the knowledge and skills necessary to become a prospective and practicing educator. You will be able to use a variety of instructional strategies to effectively facilitate the learning of mathematics. This course focuses on selecting appropriate resources, using multiple strategies, and instructional planning, with methods based on research and problem solving. A deep understanding of the knowledge, skills, and disposition of mathematics pedagogy is necessary to become an effective secondary mathematics educator. There are no prerequisites for this course.

*This course covers the following competencies:*

- *The graduate integrates principles and models of teaching for understanding into learning activities.*
- *The graduate evaluates learning activities for alignment with the National Council of Teachers of Mathematics (NCTM) standards.*
- *The graduate incorporates standards and best practices for the teaching and learning of mathematics for all students into instructional practice.*
- *The graduate evaluates teaching tools and strategies for the purpose of planning learning activities.*
- *The graduate accommodates the needs and abilities of diverse students in the planning of learning activities.*
- *The graduate uses multiple assessment strategies to evaluate student understanding and guide instruction.*
- *The graduate integrates problem solving into learning activities to build conceptual understanding.*

### Algebra for Secondary Mathematics Teaching

Algebra for Secondary Mathematics Teaching explores important conceptual underpinnings, common misconceptions and students' ways of thinking, appropriate use of technology, and instructional practices to support and assess the learning of algebra. Secondary teachers should have an understanding of the following: algebra as an extension of number, operation, and quantity; various ideas of equivalence as it pertains to algebraic structures; patterns of change as covariation between quantities; connections between representations (tables, graphs, equations, geometric models, context); and the historical development of content and perspectives from diverse cultures. In particular, the focus should be on deeper understanding of rational numbers, ratios and proportions, meaning and use of variables, functions (e.g., exponential,

logarithmic, polynomials, rational, quadratic), and inverses. Calculus I is a prerequisite for this course.

*This course covers the following competencies:*

- *The graduate analyzes historical development, perspectives from diverse cultures, and content knowledge to deepen a student's algebraic understanding.*
- *The graduate analyzes conceptual algebra underpinnings, common misconceptions, and students' ways of thinking to create opportunities to learn.*
- *The graduate integrates technology to support and assess students' learning of algebra.*
- *The graduate integrates instructional practices to support and assess students' understanding of algebra.*

## Mathematics History and Technology

In this course, you will learn about a variety of technological tools for doing mathematics, and develop a broad understanding of the historical development of mathematics. You will come to understand that mathematics is a very human subject that comes from the macro-level sweep of cultural and societal change, as well as the micro-level actions of individuals with personal, professional, and philosophical motivations. You will focus on the historical development of mathematics including contributions of significant figures and diverse cultures. Most importantly, you will learn to evaluate and apply technological tools and historical information to create an enriching student-centered mathematical learning environment.

*This course covers the following competencies:*

- *The graduate analyzes the historical development of methods in mathematics.*
- *The graduate analyzes the humanistic, social, and political influences on mathematical discoveries and the applications and effect of those discoveries.*
- *The graduate integrates student-centered technology in the planning of learning activities to build understanding of mathematical concepts and promote creativity.*
- *The graduate integrates mathematics history into the planning of learning activities to improve student learning.*
- *The graduate analyzes major historical developments and cultural contributions in number systems, algebra, geometry, calculus, discrete mathematics, statistics and probability, and measurement.*
- *The graduate utilizes appropriate industry-standard technological tools to solve problems.*
- *The graduate evaluates technological tools for appropriate use in a variety of situations.*

## Education

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### Teaching in the Middle School

Teaching in the Middle School examines the guiding principles and best teaching practices for educating middle school students. The course explores the history of the middle school, the philosophy, theory, and rationale behind middle school organization; and the differences between elementary, middle, and secondary schools. The course also examines the unique needs of middle school students and teaching methods used to meet the needs of these learners. This course has no prerequisites.

*This course covers the following competencies:*

- *The graduate analyzes supportive age-appropriate best teaching practices that move middle school students toward independence and prepare them to be successful lifelong learners.*
- *The graduate examines the evolution of school structures, theory, and educational philosophy to understand how the middle school environment is different from the elementary, junior high, and high school environments.*
- *The graduate evaluates various models of middle school organization to determine how each meets the developmental needs of early adolescents.*

# Middle School Mathematics Content

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## Middle School Mathematics: Content Knowledge

Mathematics: Middle School Content Knowledge is designed to help candidates refine and integrate the mathematics content knowledge and skills necessary to become successful middle school mathematics teachers. A high level of mathematical reasoning skills and the ability to solve problems are necessary to complete this course. Prerequisites for this course are College Geometry, Probability and Statistics I, and Pre-Calculus.

*This course covers the following competencies:*

- *The graduate synthesizes mathematical concepts and practices essential in middle school mathematics to generate a comprehensive understanding of the discipline.*
- *The graduate verifies that they possess the requisite middle school mathematics knowledge and skills by passing the middle school mathematics content knowledge test required to become a beginning teacher of middle school mathematics.*

## Research

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### Research Foundations

The Research Foundations course focuses on the essential concepts of four major research approaches, including quantitative, qualitative, mixed, and action research. No original data collection or analysis will be required in this course.

*This course covers the following competencies:*

- *The graduate applies and justifies appropriate research methods and design in quantitative, qualitative, mixed methods, and action research scenarios to address the research question(s).*
- *The graduate analyzes the key aspects of quantitative research and characterizes the major approaches to quantitative research.*
- *The graduate analyzes the key aspects of mixed methods research and characterizes the major approaches to mixed methods research.*
- *The graduate analyzes the characteristics of research quality and the potential threats to the quality of results in qualitative, quantitative, mixed methods, and action research studies.*
- *The graduate analyzes the key aspects of qualitative research and characterizes the major approaches to qualitative research.*
- *The graduate analyzes different measurement scales and differentiates between reliability and validity, and their subtypes, as they relate to assessments.*
- *The graduate evaluates and selects appropriate basic data analysis techniques for quantitative, qualitative, mixed methods, and action research scenarios.*
- *The graduate develops clear research questions that can be investigated and hypotheses that can be tested with empirical data.*
- *The graduate analyzes ethical issues and identifies appropriate procedures for educational research.*
- *The graduate analyzes the key aspects of action research and characterizes the major approaches to action research.*
- *The graduate describes the purpose for a literature review and develops an organized literature review relevant to educational research topics, problems, and questions.*
- *The graduate evaluates the purpose, process, and practice of the generation and justification of knowledge in educational research.*
- *The graduate differentiates among the major methods of data collection, including their strengths and limitations in the selection of an appropriate method of data collection.*
- *The graduate completes a research proposal.*

# Research Fundamentals

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## Research Questions and Literature Review

The Research Questions and Literature Reviews course focuses on how to conduct a thorough literature review that addresses and identifies important educational research topics, problems, and questions, and helps determine the appropriate kind of research and data needed to answer one's research questions and hypotheses.

*This course covers the following competencies:*

- *The graduate develops clear research questions that can be investigated and hypotheses that can be tested with empirical data.*
- *The graduate describes the purpose for a literature review and develops an organized literature review relevant to educational research topics, problems, and questions.*
- *The graduate differentiates among the major methods of data collection, including their strengths and limitations in the selection of an appropriate method of data collection.*

## Capstone

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### MA, Mathematics Education (5-9) Teacher Performance Assessment

MA, Mathematics Education (5-9) Teacher Performance Assessment contains a comprehensive, original, research based curriculum unit designed to meet an identified educational need. It provides direct evidence of the candidate's ability to design and implement a multi-week, standards-based unit of instruction, assess student learning, and then reflect on the learning process. The WGU Teacher Performance Assessment requires students to plan and teach a multi-week standards-based instructional unit consisting of seven components: 1) contextual factors, 2) learning goals, 3) assessment, 4) design for instruction, 5) instructional decision making, 6) analysis of student learning, and 7) self-evaluation and reflection.

*This course covers the following competencies:*

- *The graduate integrates strategies to develop academic language that facilitates effective student participation and engagement in learning.*
- *The graduate integrates and synthesizes competencies from across the degree program, thereby demonstrating the ability to participate in and contribute value to the chosen professional field.*
- *The graduate integrates a variety of strategies and resources to differentiate instruction and meet the needs of diverse learners.*
- *The graduate demonstrates ethical responsibilities and appropriate teaching dispositions, including those outlined in the Western Governors University Teachers College Code of Ethics.*
- *The graduate utilizes assessment data to profile student learning, communicate information about student progress and achievement, and guide and modify instruction.*
- *The graduate evaluates the teaching context to accommodate student differences to plan for instruction and assessment.*
- *The graduate plans comprehensive learning segments of instruction and assessment that align with standards and the needs of students.*
- *The graduate evaluates teaching experiences including the planning and implementing of curriculum and instruction through ongoing reflection.*
- *The graduate recommends strategies that support the development of academic language for all students.*
- *The graduate recommends improvements for instruction and professional practice through personal reflection.*
- *The graduate develops appropriate plans for professional growth in subject matter knowledge and pedagogical skills, including habits and skills of continual inquiry and learning.*
- *The graduate plans learning environments that support individual learning, collaboration, and positive social*

*interaction.*

- *The graduate applies instructional strategies that promote learning, engage students, and provide differentiated instruction.*

## Need More Information? WGU Student Services

WGU's Student Services team is dedicated exclusively to helping you achieve your academic goals. The Student Services office is available during extended hours to assist with general questions and administrative or accessibility issues. The Student Services team members help you resolve issues, listen to student issues and concerns, and make recommendations for improving policy and practice based on student feedback. The Student Services team provides a formal means by which you can express your views, which in turn will inform the decisions we make.

Student Services team members also assist with unresolved concerns to find equitable resolutions. To contact the Student Services team, please feel free to call 877-435-7948 or e-mail [studentservices@wgu.edu](mailto:studentservices@wgu.edu). We are available Monday through Friday from 6:00 a.m. to 10:00 p.m., Saturday from 7:00 a.m. to 7:00 p.m., mountain standard time. Closed Sundays.

If you have inquiries or concerns that require technical support, please contact the WGU IT Service Desk. The IT Service Desk is available Monday through Friday, 6:00 a.m. to 10:00 p.m. and Saturday and Sunday, 10:00 a.m. to 7:00 p.m., mountain standard time. To contact the IT Service Desk, please call 1-877-HELP-WGU (877-435-7948) or e-mail [servicedesk@wgu.edu](mailto:servicedesk@wgu.edu). The support teams are generally closed in observance of university holidays.

For the most current information regarding WGU support services, please visit "Student Support" on the Student Portal at <http://my.wgu.edu>.