Program Guidebook

Bachelor of Science, Mathematics Education (Secondary) - WA

The Bachelor of Science, Mathematics Education (Secondary) - WA is a competency-based degree program that prepares students in the state of Washington to be licensed as mathematics teachers in middle grades. All work in this degree program is online with the exception of the Demonstration Teaching and in-classroom field experience components. The program consists of work in Mathematics Content, Teacher Education Foundations, and Mathematics Education. This program includes clinical experiences that prepare teacher candidates for the classroom. Candidates develop and refine their teaching skills through a series of sequential experiences beginning with video-based observations of classroom instruction. Observations prepare candidates for authentic collaborative pre-clinical teaching experiences in K-12 settings. Clinical experiences culminate with supervised demonstration teaching in a real classroom.

How You Will Interact with Faculty

you to take advantage of this support. It is key to your progress and ultimate success.

calls, your program mentor is available to help you resolve questions and concerns as they arise.

and allow you to advance.

Connecting with Other Mentors and Fellow Students

detailed information about each assessment is provided in each course of study.

External Content & Basic Skills Exams

State Licensure Requirements

Learning Resources

resources, as needed.

Mobile Compatibility:

Standard Path

your determination to proceed at a faster rate.

Standard Path for Bachelor of Science, Mathematics Education (Secondary) - WA

Course Description	CUs

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Changes to Curriculum

re-enter into the most current catalog version of the program.

Areas of Study Bachelor of Science, Mathematics Education (Secondary) - WA

General Education

Composition: Writing with a Strategy

common standards and practices.

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The individual writes with purpose for a given context and target audience.
- The individual incorporates writing strategies and techniques for written communication.
- The individual constructs a written document with correct format, style, structure, and grammar.
- The individual formulates a strategy for editing and revising written text.
- The individual composes constructive feedback of written texts.

Introduction to Communication: Connecting with Others

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The learner implements appropriate communication styles based on audience and setting.
- The learner uses communication strategies for managing conflict.
- The learner uses communication strategies to influence others.

Integrated Physical Sciences

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The learner describes the nature and process of science.
- The learner examines applications of physics including fundamental concepts such as forces, motion, energy, and waves.
- The learner examines applications of key chemistry concepts including the structure of matter and the behavior and conservation of matter in chemical reactions.
- The learner describes the underlying organization, interactions, and processes within the Earth system including the Earth's structure and atmosphere, and Earth's interactions within the solar system.

College Algebra

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized *course plan together.*
- 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.
- The graduate solves systems of linear equations and their related applications.
- The graduate simplifies and factors polynomial expressions, and solves polynomial equations.
- 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.

Composition: Successful Self-Expression

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
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This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes the role of historical and cultural influences, including issues of federal and state governance, in determining standard educational practices and ensuring equal access to educational opportunities.
- The graduate examines the impact of standards-based curriculum on students and teachers to determine how it supports a school's goals.
- The graduate evaluates the application of educational best practices in diverse learning settings to inform teaching practice.
- The graduate explores pathways and opportunities for professional development to grow as an educator.

Educational Psychology and Development of Children and Adolescents

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate describes theories of development across the cognitive, linguistic, social, emotional, and physical areas to understand the needs of students at various developmental levels.
- The graduate evaluates the influence of students' developmental characteristics on their learning and evaluates performance to inform instructional decisions.
- The graduate recommends instructional strategies that will positively impact learning, based on principles of learning theories.
- The graduate evaluates classroom practices to determine how theories of child and adolescent psychology, learning, and development are applied in the classroom environment.

Fundamentals of Diverse Learners

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes the application of policies, practices, and legal requirements to inform teaching practice.
- The graduate creates inclusive learning environments featuring multitiered systems of supports to address the needs of all students, including exceptional learners and English learners.
- The graduate creates learning experiences that accommodate the needs of students with exceptionalities, including gifted and talented students, in order to facilitate the success of all learners.

generate a comprehensive understanding of the discipline.

- The graduate verifies that they possess the requisite mathematical knowledge and skills by passing the mathematics content knowledge test required to become a beginning teacher of secondary school mathematics.

Calculus III

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate demonstrates understanding of vectors and fluency with vector operations and applications.
- The graduate demonstrates understanding of functions of more than one variable and applies that knowledge to solve problems.
- The graduate demonstrates understanding of the properties of series and their applications and determines the convergence of series.

Mathematical Modeling and Applications

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate formulates mathematical models for real-world situations.
- The graduate critiques mathematical models for accuracy of approach relative to the problem.
- The graduate refines mathematical models to better correspond to information and to support assumptions that are more realistic.
- The graduate applies discrete dynamic systems to solve real-world problems.
- The graduate applies continuous dynamic systems to solve real-world problems.

Linear Algebra

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate demonstrates understanding of the properties and characteristics of vector spaces.
- The graduate demonstrates understanding of linear transformations and their applications.
- The graduate applies matrix theory and matrix algebra to model and solve problems.

- The graduate applies propositional logic to solve mathematical problems.
- The graduate applies predicate logic to solve mathematical problems.

Abstract Algebra

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate demonstrates an understanding of important number theory principles, their applications, and proofs.
- The graduate analyzes the characteristics of and proves theorems involving groups.
- The graduate demonstrates understanding of the characteristics of and proves theorems involving rings.
- The graduate demonstrates understanding of the characteristics of and proves theorems involving fields and subfields.

Advanced Calculus

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate writes mathematical proofs with proper mathematical notation and terminology to demonstrate their understanding of accepted mathematical conventions.
- The graduate analyzes the real number system using precise definitions and theorems to develop an advanced perspective.
- The graduate analyzes limits of sequences using precise definitions and theorems to develop an advanced perspective.
- The graduate analyzes functions of one real variable using precise definitions and theorems to develop an advanced perspective.

General Science Content

Introduction to Biology

- The graduate analyzes inter-dependencies of organisms and their environments.

Mathematics Education

Algebra for Secondary Mathematics Teaching

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes historical development, perspectives from diverse cultures, and content knowledge to deepen a student's algebraic understanding.
- The graduate integrates instructional practices to support and assess students' understanding of algebra.
- The graduate integrates technology to support and assess students' learning of algebra.
- The graduate analyzes conceptual algebra underpinnings, common misconceptions, and students' ways of thinking to create opportunities to learn.

Statistics and Probability for Secondary Mathematics Teaching

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes historical development, perspectives from diverse cultures, and content knowledge to deepen a student's statistics and probability understanding.
- The graduate integrates instructional practices to support and assess students' understanding of statistics and probability.
- The graduate integrates technology to support and assess students' learning of statistics and probability.
- The graduate analyzes conceptual statistics and probability underpinnings, common misconceptions, and students' ways of thinking to create opportunities to learn.

Geometry for Secondary Mathematics Teaching

student's geometry understanding.

- The graduate integrates instructional practices to support and assess students' understanding of geometry.
- The graduate integrates technology to support and assess students' learning of geometry.
- The graduate analyzes conceptual geometry underpinnings, common misconceptions, and students' ways of thinking to create opportunities to learn.

Mathematics History and Technology

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes major historical developments and cultural contributions in number systems, algebra, geometry, calculus, discrete mathematics, statistics and probability, and measurement.
- 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 evaluates technological tools for appropriate use in a variety of situations.
- The graduate utilizes appropriate industry-standard technological tools to solve problems.
- 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.

Mathematics Learning and Teaching

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate integrates principles and models of teaching for understanding into learning activities.
- The graduate integrates problem solving into learning activities to build conceptual understanding.
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This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The learner analyzes integrated learning experiences that incorporate Native perspectives.

Pedagogy

Secondary Reading Instruction and Interventions

completion of the Introduction to Curriculum, Instruction, and Assessment course OR Introduction to Instructional Planning

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate explains how the Response to Intervention (RTI) approach identifies, monitors, and differentiates instruction to ensure that struggling readers obtain the appropriate support and interventions to improve academic progress.
- The graduate develops effective vocabulary instruction to enhance students' reading comprehension in the content areas.
- The graduate integrates knowledge of effective comprehension strategies to help students monitor and improve their own comprehension when reading.
- The graduate integrates reading strategies that scaffold instruction for students when reading increasingly complex texts.
- The graduate integrates reading assessments to make informed instructional and placement decisions.

Secondary Disciplinary Literacy

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate distinguishes between the basic strategies used to facilitate comprehension in the content areas and the specialized reading practices needed to comprehend text in a specific discipline.
- The graduate integrates discipline-specific literacy instruction to help students understand the text structures, vocabulary, and language knowledge required for specific disciplines.
- The graduate plans writing activities that promote understanding of discipline-specific content through the organization, analysis, and synthesis of ideas.
- The graduate creates authentic learning tasks and activities that provide students with opportunities to demonstrate discipline specific understandings.
- The graduate integrates instructional strategies and materials in disciplinary literacy practices to enhance student understanding within the disciplines.

Pre-Clinical Experiences

Preclinical Experiences in Mathematics

This course covers the following competencies:

- The learner plans content-based instruction that supports student learning objectives.
- The learner integrates instructional strategies to address the needs of all students and meet the learning goals and objectives.
- The learner assesses student learning to monitor progress, engage learners in their own growth, and guide decision-making.

Demonstration Teaching

Teacher Performance Assessment in Mathematics Education

of your content, planning, instructional, and reflective skills.

This course covers the following competencies:

- The graduate evaluates the teaching context to accommodate student differences to plan for instruction and assessment.
- The graduate plans learning environments that support individual learning, collaboration, and positive social interaction.
- The graduate plans comprehensive learning segments of instruction and assessment that align with standards and the needs of students.
- The graduate applies instructional strategies that promote learning, engage students, and provide differentiated instruction.
- The graduate integrates strategies to develop academic language that facilitates effective student participation and engagement in learning.
- The graduate utilizes assessment data to profile student learning, communicate information about student progress and achievement, and guide and modify instruction.
- The graduate evaluates teaching experiences including the planning and implementing of curriculum and instruction through ongoing reflection.

Professional Portfolio

communication with families) developed and acquired during Demonstration Teaching Ĩ ‘ ‘
The graduate utilizes assessment data to profile student learning, communicate information abo38eliemiF00growthbl <</MTGas of1.439 0

Accessibility and Accommodations

students. WGU's Accessibility Services team supports this mission by providing support, resources, advocacy,

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