# Program Guidebook

## Master of Arts Science Education (Middle Grades)

The Master of Arts Science Education (Middle Grades) is a competency-based degree program that prepares already licensed teachers for an endorsement in middle levelgeneral science and provides the opportunity to develop skills in science curriculum development, design, and evaluation. All work in this degree program is online and includes General Science Content, Biology Content, Geosciences Content, and Science Education courses. All students complete a culminating Teacher Performance Assessment.

## 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 \ R X U G H J U H H E \ G H P R Q V W U D W L Q J \ R X U V N L O O V N Q R Z O H G J H D Q G

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 F R Q W H Q W \ R X P X V W P D V W H U W R S D V V W K H F R X U V H D V V H V V P H Q W V

The benefit of this competency-based system is that it 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

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

'Requirement Satisfied' (RS) in some cases.  Refer to your specific program transfer guidelines to determine what can be satisfied by previously earned college credits. In most cases, WGU does not accept college transfer credits at the graduate (master's) level. Students entering graduate programs must have their undergraduate degree transcripts verified before being admitted to WGU. In addition to a program's standard course path, there may be additional state-specific 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 U H O H Y D Q W  D Q G  F X U U H Q W

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 S R V V H V V  P D \  K H O S  \ R X  D F F H O H U D W H  W K H  W L P H  L W  W D N H V  W R  F R

## 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- P R Q W K  W H U P

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.

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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 G H W D L O H G L Q I R U P D W L R Q D E R X W H D F K D V V H V V P H Q W L V S U R Y L G H G

## 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

This program does not lead to state 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 U H V R X U F H V D V Q H H G H G

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The following article provides additional details about the current state of mobile compatibility for learning resources at WGU.

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 \ R X U G H W H U P L Q D W L R Q W R S U R F H H G D W D I D V W H U U D W H

## Standard Path for Master of Arts Science Education (Middle Grades)

| Course Description | CUs | Term |
|---|---|---|
| Concepts in Science | 1 | 1 |
| Integrated Physical Sciences | 2 | 1 |
| Introduction to Biology | 2 | 1 |
| Chemistry with Lab | 3 | 1 |
| Heredity and Genetics | 2 | 2 |
| Science, Technology, and Society | 2 | 2 |
| General Physics | 3 | 2 |
| Astronomy | 2 | 2 |
| Ecology and Environmental Science | 2 | 3 |
| Earth: Inside and Out | 3 | 3 |
| Middle School Science: Content Knowledge | 1 | 3 |
| Teaching in the Middle School | 2 | 3 |
| Science Methods—Middle Grades General Science | 3 | 4 |
| MA, Science Education 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

# Areas of Study for Master of Arts Science 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.

## Science

### Concepts in Science

Concepts in Science for graduates provides already-licensed teachers seeking an additional license or endorsement in science education with an introduction to essential science themes present within and across all science disciplines, including chemistry, physics, biology, and the geosciences. These themes include comprehending the magnitude of the physical and natural world, analyzing and converting measurements, understanding the basic nature and behavior of matter and energy, examining atomic structure, identifying and naming basic types of chemical bonds, and analyzing and interpreting scientific data. Concepts in Science provides a solid foundation for future, in-depth, scientific studies and should be taken prior to any other science content course. There are no prerequisites for this course.

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 a variety of measurements to solve scientific problems.
- The graduate analyzes interactions between matter and energy to explain how they flow within, into, and out of systems.
- The graduate analyzes the composition of atoms and compounds to explain the properties of matter.
- The graduate evaluates experimental data to determine their validity.

### Integrated Physical Sciences

This course provides students with an overview of the basic principles and unifying ideas of the physical sciences: physics, chemistry, and Earth sciences. Course materials focus on scientific reasoning and practical and everyday applications of physical science concepts to help students integrate conceptual knowledge with practical skills.

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

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.
- The graduate analyzes the characteristics and classifications of living organisms.
- The graduate analyzes the basic chemical composition of cells and the basic processes that happen at the cellular level.
- The graduate analyzes different types of cells based on their structures and biological functions.
- The graduate analyzes the biological basis for and patterns of heredity and gene expression.
- The graduate analyzes inter-dependencies of organisms and their environments.

## Chemistry Content

### Chemistry with Lab

Chemistry with Lab for graduates provides already licensed teachers seeking an additional license or endorsement in middle grades science or secondary physics, biological science, or earth science with an introduction to the field of chemistry. Designed for those not majoring in chemistry education, this course highlights how the topics covered can be applied within various branches of science. This course provides students with opportunities to examine the electronic structure of atoms, study periodic trends, name chemical compounds, write chemical formulas, determine the structure of molecules, balance chemical reactions, and discover the changing states of matter. Laboratory experiences facilitate the study of matter and the application of laboratory safety and maintenance procedures. Concepts in Science for graduates is a prerequisite for this course.

- The graduate applies the principles of population genetics to determine characteristics of a population.

## Science Education

### Science, Technology, and Society

Science, Technology, and Society explores the ways in which science influences and is influenced by society and technology. A humanistic and social endeavor, science serves the needs of ever-changing societies by providing methods for observing, questioning, discovering, and communicating information about the physical and natural world. This course

- The graduate evaluates composition and structure of our solar system to describe Earth's place and evolution.
- The graduate discusses classification and life cycle of stars, such as our sun and its fate, to explain the diversity of celestial objects, including stellar remnants.
- The graduate critiques the structure, composition, and classification of the Milky Way and other galaxies as well as concepts of cosmology and the Doppler effect of light to explain the physical evolution of the universe.

## Earth: Inside and Out

Earth: Inside and Out explores the ways in which our dynamic planet evolved, and the processes and systems that continue to shape it. Though the geologic record is incredibly ancient, it has only been studied intensely since the end of the 19th century. Since then, research in fields such as geologic time, plate tectonics, climate change, exploration of the deep-sea floor, and the inner earth have vastly increased our understanding of geological processes.

This course covers the following competencies:

- Begin your course by discussing your course planning tool report with your instructor and creating your personalized F R X U V H S O D Q W R J H W K H U
- The graduate evaluates how past and current science is applied to the study and dating of rocks to observe and describe geologic features.
- The graduate evaluates what rocks tell us about the composition of the early atmosphere to explain the interconnectedness of the Earth's systems.
- The graduate examines how computer modeling is used to describe and study mantle convection in order to e4 >>BDCiies: Ah0cl<019

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assessment.

- The graduate recommends improvements for instruction and professional practice through personal reflection.
- The graduate plans learning environments that support individual learning, collaboration, and positive social interaction.
- The graduate demonstrates ethical responsibilities and appropriate teaching dispositions, including those outlined in the Western Governors University Teachers College Code of Ethics.
- 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 recommends strategies that support the development of academic language for all students.
- 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 integrates a variety of strategies and resources to differentiate instruction and meet the needs of diverse learners.
- The graduate evaluates teaching experiences including the planning and implementing of curriculum and instruction through ongoing 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.

## Accessibility and Accommodations

Western Governors University is committed to providing equal access to its academic programs to all qualified V W X G H Q W V : * 8 ¶ V $ F F H V V L E L O L W \ 6 H U Y L F H V × W H D P V X S S R U W V W K L V P L V collaboration, and academic accommodations for students with disabilities and other qualifying conditions under the Americans with Disabilities Act (ADA). WGU encourages student to complete the Accommodation Request Form as soon as they become aware of the need for an accommodation. Current and prospective students can reach the Accessibility Services team Monday through Friday 8:00 a.m. to 5:00 p.m. MST at 1-877-HELP-WGU (877-435-7948) x5922 or at ADASupport@wgu.edu.

## 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 requests. The Student Services team members help you resolve issues, listen to student issues and concerns, and

(877-435-7x59e-m is or at ADASrvicesbeeedith glusgu.edu