



## Program Guidebook

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### Master of Arts Science Education (Secondary Biological Science)

The Master of Arts in Science Education (Secondary Biological Science) is a competency-based degree program that prepares already licensed teachers for an endorsement in secondary biology 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, 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 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 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 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 2020. The WGU Teachers College is accredited at the initial-licensure level by the Council for the Accreditation of Educator Preparation (CAEP) and by the Association of Advancing Quality in Educator Preparation (AAQEP). 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, community5tdeosentor ly 1oyoptiolty and racu05300550052004A work anono5orT\*(evaluation. If yoserve and oaT\*GU Stet weekly stptiolty andmeets requorses, aPorticet you w yo

'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 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.

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

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education with an introduction to the field of zoology. Zoology includes the study of major animal phyla emphasizing characteristics, variations in anatomy, life cycles, adaptations, and relationships among the animal kingdom. A prerequisite for this course is Introduction to Biology.

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 the characteristics of animals to organize them into phyla.

The graduate analyzes the anatomies of animals to distinguish the relationships among organisms.

The graduate analyzes adaptations to recognize the impact on the evolution of phyla.

The graduate analyzes the life cycles of animals to determine the relationships within and between phyla.

## Evolution

This course addresses why evolution is the fundamental concept that underlies all life sciences and how it contributes to advances in medicine, public health, and conservation. This course helps participants gain a firm understanding of the basic mechanisms of evolution including the process of speciation and how these systems have given rise to the great diversity of life in the world today. This course also explore how new ideas, discoveries, and technologies are modifying prior evolutionary concepts. Ultimately, the course will explain how evolution works and how we know what we know.

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 has a practical understanding of Darwin and the evidence that led him to propose his theory of evolution.

The graduate can explain the basic theory of evolution and how evolutionary mechanisms have driven diversification among organisms.

The graduate has an in-depth understanding of how coevolution, genetic drift, natural selection, and sexual selection contribute to the organization of the Earth's biodiversity.

The graduate appreciates the different opinions about how species are defined based on using molecular data to understand evolutionary processes.

The graduate recognizes the complexities of human evolution, where humans fit with respect to other organisms on the Tree of Life, and what sets humans apart from other animals.

The graduate recognizes how evolutionary theory impacts our lives through modern medicine, agriculture, and conservation efforts.

## Biology: Content Knowledge

This comprehensive course examines a student's conceptual understanding of a broad range of biology topics. High school biology teachers must help students make connections between isolated topics. This course starts with macromolecules that make up cellular components and continues with understanding the many cellular processes that allow life to exist. Connections are then made between genetics and evolution. Classification of organisms leads into plant and animal development that study the organ systems and their role in maintaining homeostasis. The course finishes by studying ecology and the effect humans have on the environment.

This course covers the following competencies:

*This competency exists to assess the readiness of students.*

The graduate synthesizes concepts and processes from across biology to generate a comprehensive understanding of the field.

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

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## 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

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includes safe laboratory practices and procedures for science classrooms and the proper use of personal protective equipment. Previous coursework in curriculum, instruction, and assessment is a prerequisite 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 connections among the three dimensions of science instruction—disciplinary core ideas, crosscutting concepts, and science and engineering practices—to prepare and plan for instruction.

The graduate integrates technology into science activities to support student engagement and content mastery.

The graduate develops assessment strategies that measure three-dimensional science learning to determine the effectiveness of teaching and learning experiences.

The graduate develops lessons that integrate the three dimensions of science with applicable technologies to connect scientific concepts and phenomena.

The graduate develops plans for the use, storage, and maintenance of science materials and protective equipment and for the care of living organisms to comply with district, state, and federal safety, ethical, and legal standards for science teachers.

The graduate establishes an emergency response plan to prepare for potential emergency situations in the science learning environment.

## General Science Content

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### Ecology and Environmental Science

Ecology and Environmental Science is an introductory course for graduate students seeking initial licensure or endorsement and/or to earn their MA degree in secondary or middle grade science education. The course explores the relationships between organisms and their environment, including population ecology, communities, adaptations, distributions, interactions, and the environmental factors controlling these relationships. This course has no prerequisites.

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 examines ecosystems to analyze the relationship between populations and the environment.

The graduate examines the flow of energy in an ecosystem to assess how changes in that flow affect biodiversity.

The graduate analyzes biogeochemical cycles to explain the importance of these cycles to global processes.

The graduate researches environmental challenges to discuss potential solutions.

The graduate assesses the challenges associated with resource management in order to compare potential sustainable solutions.

## Teacher Performance Assessment

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### MA, Science Education Teacher Performance Assessment

MA, Science Education 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 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 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