



Program Guidebook

Bachelor of Science, Science Education (Secondary Earth Science) - WA

The Bachelor of Science, Science Education (Secondary Earth Science) - WA is a competency based degree program that prepares students in the state of Washington to be licensed as secondary earth and space science teachers. All work in this degree program is online with the exception of the Demonstration Teaching and in-classroom field experience components, which 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 to prepare candidates for an authentic, collaborative, pre-clinical teaching experiences in K-12 settings. Clinical experiences culminate with supervised demonstration teaching in a real classroom. The program consists of work in General Education, Foundations of Teaching, General Science Content, Mathematics Content, Geosciences Content, Pedagogy, Science Education, Field Experience, and Demonstration Teaching.

'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.

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* Bachelor of Science, Science Education (Secondary Earth Science) - WA

Course Description	CUs
Composition: Writing with a Strategy	



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

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

Composition: Writing with a Strategy

Welcome to Composition: Writing with a Strategy! In this course, you will focus on three main topics: understanding purpose, context, and audience, writing strategies and techniques, and editing and revising. In addition, the first section, will offer review on core elements of the writing process, cross-cultural communication, as well as working with words and common standards and practices.

Each section includes learning opportunities through readings, videos, audio, and other relevant resources. Assessment activities with feedback also provide opportunities to check your learning, practice, and show how well you understand course content. Because the course is self-paced, you may move through the material as quickly or as slowly as you need to gain proficiency in the seven competencies that will be covered in the final assessment. If you have no prior knowledge or experience, you can expect to spend 30-40 hours on the course content.

This course covers the following competencies¹.

” 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

Welcome to Introduction to Communication: Connecting with Others! It may seem like common knowledge that communication skills are important, and that communicating with others is inescapable in our everyday lives. While this may appear simplistic, the study of communication is actually complex, dynamic, and multifaceted. Strong communication skills

The learner incorporates self-expression in written communication.

US History: Stories of American Democracy

This course presents a broad survey of U.S. history from early colonization to the mid-twentieth century. The course explores how historical events and major themes in American history have affected diverse populations, influenced changes in policy and established the American definition of democracy. This course consists of an introduction and five major sections. Each section includes learning opportunities through reading, images, videos, and other relevant resources. Assessment activities with feedback also provide opportunities to practice and check how well you understand the content. Because the course is self-paced, you may move through the material as quickly or as slowly as you need to, with the goal of demonstrating proficiency in the five competencies covered in the final assessment. If you have no prior knowledge of this material, you can expect to spend 30-40 hours on the course content.

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 secondary sources to understand events and processes in American History.

The learner analyzes primary sources to understand events or processes in American history.

The learner explains the effect of the actions of individuals in U.S. History.

The learner explains the effect of institutions on society.

The learner describes how economic, political, and social factors affect communities

College Algebra and social factors affect U.S. History

issues, and professional responsibilities to ensure student wellbeing. Additionally, crosscutting themes of technology and diversity are interwoven for further development.

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 plans for learning environments that meet all students' cultural, social, and emotional learning needs by incorporating knowledge of individual learners, diverse cultures, and communities.

The graduate develops strategies to address the social and emotional learning (SEL) needs of students, including the incorporation of trauma-informed or restorative instructional practices.

The graduate identifies appropriate resources and processes to support the mental health and emotional well-being of students.

The graduate collaborates with families, caretakers, and the larger community to identify partnerships that facilitate learner growth.

Educational Foundations

Educational Foundations is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. The course provides candidates with early classroom experience where they observe multiple school settings at three different levels of schooling and interview an educator to learn how state standards and various legal and ethical issues affect classrooms today. The course also provides candidates with opportunities to gain foundational knowledge about what it means to be a teacher in the current educational context while exploring their future role within the larger landscape of historical and cultural influences. This course ensures candidates have a firm grasp on important issues affecting educators including state standards-based curriculum, legal and ethical requirements affecting educational opportunities, and professionalism, preparing them for subsequent coursework within the Professional Core and their content area major courses. Five preclinical hours are interwoven throughout this course, and cross-cutting themes of technology and diversity are introduced for further development throughout the candidate's programs.

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

Educational Psychology and Development of Children and Adolescents is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. This course prepares candidates to support classroom practices grounded in research-validated principles from the areas of educational psychology and child/adolescent development. Candidates will be introduced to learning theories that equip them with the knowledge and skills necessary to support the diverse populations of students with whom they will interact. This course addresses theories of human development, spanning early childhood through adolescence, and candidates completing this course will be able to explain and analyze the guiding perspectives on linguistic, physical, cognitive, and social development. This course will also cover appropriate instructional and assessment strategies to support student learning and development. Candidates will engage in four hours of virtual classroom observations related to issues in educational psychology and learner development. Cross-cutting themes of technology and diversity are interwoven for further development.

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

Fundamentals of Diverse Learners is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. This course prepares candidates to consider and address the wide range of learning needs in the classrooms of today. This course teaches candidates to identify and support the needs of diverse populations of learners, including, for example, students with disabilities (Including Dyslexia), students who are English language learners, and students who are gifted and talented. Practical strategies for differentiating instruction while creating a safe, inclusive, and culturally responsive learning environment are explored. This course helps candidates develop skills for partnering with parents and advocating for all students, particularly those impacted by provisions of IDEA and Section 504 of the Rehabilitation Act. Multitiered systems of support are addressed to prepare candidates for their future classrooms as they seek to select appropriate instructional practices and interventions to best serve their students. Candidates will engage in four hours of preclinical experiences that include a simulated teaching experience in which skills learned can be applied. Cross-cutting themes of technology and diversity are interwoven for further development.

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.

The graduate integrates equity pedagogy to address the needs of multicultural learners.

The graduate plans learning experiences that accommodate linguistic diversity to facilitate the success of all learners.

The graduate recommends strategies to engage with students, families, administrators, and other stakeholders in ways that are effective, legal, and ethical.

Managing Engaging Learning Environments

Managing Engaging Learning Environments is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. This course prepares candidates to establish and contribute to safe and productive learning environments that support the success of all learners by ensuring student engagement and motivation for learning. Candidates will learn strategies, such as incorporating consistent routines and expectations, to provide positive behavior supports, increase learner motivation, promote active learning and self-direction, and ensure a safe and productive classroom setting that fosters a sense of community through collaborative educational practices. The course will culminate in evidence-based, practical application of current strategies, theories, or philosophical perspectives related to motivating and engaging all students in a learning community. Candidates will engage in seven hours of preclinical experiences that include both virtual observations of classroom settings and time in a simulated classroom environment where theory can be put into practice. Cross-cutting themes of technology and diversity are interwoven for further development.

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 establishes norms and routines to create a safe and productive learning environment that encourages positive social interactions, individual and collaborative learning, and appropriate classroom behaviors.

The graduate interacts with each student in a way that builds positive relationships by using knowledge of individual learners, diverse cultures, and communities.

The graduate analyzes the theoretical foundations and application of classroom management strategies, including behavior support and conflict management, to inform teaching practice.

The graduate recommends strategies that are motivating and encourage active engagement from all students.

Introduction to Curriculum, Instruction, and Assessment

Introduction to Curriculum, Instruction, and Assessment is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. This course provides candidates with the knowledge and skills necessary to create engaging and standards-aligned lessons that meet the needs of all learners. Candidates will learn to analyze learner needs based on a variety of inputs, including their state P–12 standards, assessment results, and knowledge of learner differences. This course will help candidates design, deliver, and modify instruction in accordance to needs and educational requirements. Candidates will engage in three hours of preclinical experiences that include virtual classroom observations. They also will record a short teaching segment, allowing for authentic teaching experience. Cross-cutting themes of technology and diversity are interwoven for continued development.

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 aligns lessons to learning goals by synthesizing knowledge about students and their assessment data.

The graduate analyzes the role of various assessment types in evaluating student learning and planning future instruction.

The graduate implements evidence-based instructional strategies to increase content area learning.

The graduate differentiates instruction to facilitate mastery for all learners.

The graduate incorporates cross-disciplinary instruction, skills, and content into lessons.

The graduate creates standards-based instructional plans based on their state's P–12 standards that incorporate knowledge of learners' developmental needs, prior learning, and community and cultural context.

Assessing Impact on Student Learning

Assessing Impact on Student Learning is a key component of WGU's Professional Core and is a required course for all initial licensure candidates. This course equips candidates to evaluate student learning and their own professional practice, ensuring candidates are prepared to ensure all learners' success. In this course, candidates learn multiple methods of assessment to ensure they are able to implement a balanced approach to assessment while monitoring their students' progress. Assessments types such as formative, summative, standardized, and common assessments are addressed so candidates understand their purposes and can apply them within the context of a lesson to determine impact on learning. Data literacy skills are taught to ensure candidates interpret and analyze individual and classroom data and apply their knowledge in ways that support academic success. Candidates will engage in three hours of preclinical experiences that include virtual classroom observations. Cross-cutting themes of technology and diversity are interwoven for further development.

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 plans a progress-monitoring strategy, including formative, summative, and common assessments, that actively engages students in their own learning.

The graduate analyzes assessment results to evaluate student learning and teacher effectiveness.

The graduate makes evidence-based instructional decisions that are informed by student assessment data.

The graduate determines their impact on learners and the broader school community through evaluation of teaching practice.

Educational Technology for Teaching and Learning

Educational Technology for Teaching and Learning is a key component of WGU's professional core and is a required course for all initial licensure candidates. This course prepares candidates to incorporate technology into their classroom practices in ways that improve teaching and learning. The ISTE standards will form the basis for their practice. The material will teach candidates to critically evaluate software and hardware options that may positively impact the classroom environment, while

The graduate analyzes how research-based applications of technology facilitate student learning.

The graduate evaluates the application of technology in the classroom, including its impact on learning for all students and potential equity or access issues.

The graduate promotes a technology-enabled classroom culture that is equitable, ethical, and socially responsible.

The graduate applies curricular and instructional design principles to create effective digital learning environments.

The graduate recommends technology as an assessment tool to encompass multiple learner needs, provide in the moment feedback, and inform instruction.

The graduate fosters student self-directedness and independent learning through the use of technology.

General Science Content

Introduction to Biology

This course is a foundational introduction to the biological sciences. The overarching theories of life from biological research are explored as well as the fundamental concepts and principles of the study of living organisms and their interaction with the environment. Key concepts include how living organisms use and produce energy; how life grows, develops, and reproduces; how life responds to the environment to maintain internal stability; and how life evolves and adapts to the environment.

The graduate has a broad understanding of energy, including mechanics, heat, and electricity and magnetism.

The graduate has a broad understanding of wave motion and atomic nuclear physics.

Geology I: Physical

Geology I: Physical provides undergraduate students seeking initial licensure or endorsement in secondary science education with an introduction to minerals and rocks, the physical features of the Earth, and the internal and surface processes that shape those features. 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 traces Western history of Earth sciences to discuss key concepts and famous scientists in a cultural context.

The graduate analyzes composition, location, movement, and physical evidence of tectonic plates to distinguish landforms and geologic features.

The graduate analyzes minerals and rocks for the purpose of identification and classification.

The graduate examines Earth's internal processes to discuss Earth's magnetic field, convection currents in the mantle, and plate tectonic activity.

The graduate examines weathering, erosion, and deposition of sediments by gravity, wind, water, and ice to describe landform and geologic features.

The graduate analyzes topographical and geologic maps to deduce landform and geologic features.

The graduate examines solar system objects, including composition, properties, location, and origin, to determine Earth's evolution within the solar system.

Science

Concepts in Science

Concepts in Science for undergraduates provides students seeking a bachelor's degree and initial teacher licensure 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 applies principles of measurement to solve scientific problems.

The graduate explains how various forms of matter and energy respond to physical and chemical changes to understand how matter and energy flow within and among systems.

The graduate determines the composition of atoms and compounds to understand the properties of matter.

The graduate analyzes numeric data to identify patterns and relationships.

Chemistry Content

Chemistry with Lab

Chemistry with Lab for undergraduates provides students seeking initial teacher licensure in middle grades science or secondary physics, biological science, or earth science with an introduction to the field of chemistry, the branch of science that studies the composition, structure, properties, and behavior of matter. 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 undergraduates 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 explains how chemistry is applied within other sciences to understand its relevance within the physical and natural world.

The graduate conducts safe and effective investigations to test hypotheses and draw conclusions.

The graduate determines the electronic structure of atoms and periodic trends to compare the properties of various substances.

The graduate names basic compounds, using the periodic table and IUPAC rules, to identify their composition.

The graduate explains how chemical bonds and electron orientation impact the structures and behavior of molecules to understand the composition of matter.

The graduate balances chemical equations to follow the Law of Conservation of Matter.

The graduate determines quantities of heat released or absorbed during chemical reactions to examine relationships between heat and other forms of energy.

The graduate explains how matter changes from one state to another to determine the causes and effects of such transformations.

Geosciences Content

Geology II: Earth Systems

Geology II: Earth Systems provides undergraduate students seeking licensure or endorsement in secondary science education with an examination of the geosphere, atmosphere, hydrosphere, biosphere, and the dynamic equilibrium of these systems over geologic time. This course also examines the history of Earth and its life-forms, with an emphasis in meteorology. Geology I: Physical 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 maps the structure and function of Earth's geosphere for soil utility in the environment.

The graduate examines the structure and composition of Earth's atmosphere to distinguish its current atmosphere from historical and other planetary atmospheres.

The graduate evaluates physical meteorological principles and processes to predict weather patterns and the movement of air masses.

The graduate analyzes various factors and influences on climate to anticipate long-term effects.

The graduate examines the structure and function of Earth's surface water, ice, groundwater, and oceans to explain global water management.

The graduate discusses Earth's history and life-forms to trace physical and biological evolutionary processes on this planet.

The graduate analyzes how Earth's systems (i.e., biosphere, geosphere, atmosphere, and hydrosphere) interface and evolve over geologic time to teach biologic, geologic, atmospheric, meteorologic, and hydrologic interaction.

The Ocean Systems

In this course, learners investigate the complex ocean system by looking at the way its components—atmosphere, biosphere, geosphere, and hydrosphere—interact. Specific topics include: origins of Earth's oceans and the early history of life; physical characteristics and geologic processes of the ocean floor; chemistry of the water molecule; energy flow between air and water, and how ocean surface currents and deep circulation patterns affect weather and climate; marine biology and why ecosystems are an integral part of the ocean system; the effects of human activity; and the role of professional educators in teaching about ocean systems.

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 knowledge of oceans, their formation, and the interconnections between ocean systems, the atmosphere, the biosphere, and the geosphere.

The graduate analyzes how properties of seawater affect the ocean systems.

The graduate analyzes ocean currents and how they influence weather and climate.

The graduate analyzes the interrelationships of life forms, natural systems, and cycles within the ocean environment.

The graduate utilizes knowledge of ocean systems, environmental challenges, oceanographic and interdisciplinary methods, and pedagogical techniques to effectively teach others about the ocean systems.

Astronomy

Astronomy provides undergraduate students seeking initial licensure or endorsement in secondary or middle grade science education with essential knowledge of astronomy. It explores Western history and basic physics of astronomy, phases of the moon and seasons, composition and properties of solar system bodies, stellar evolution and remnants, properties and scale of objects and distances within the universe, and introductory cosmology. General Physics 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 traces Western history of astronomy to place key concepts and famous scientists in cultural context.

The graduate applies tools and techniques necessary to study astronomical objects and events.

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

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

Professional Portfolio requires candidates to create an online teaching portfolio that demonstrates professional beliefs, growth, and effective teaching practices from the Demonstration Teaching experience. The portfolio includes reflective essays (educational beliefs, professional growth, and collaboration with stakeholders) and professional artifacts (resume and artifacts with commentary on academic language, systems of student support, education technology, and professional communication with families) developed and acquired during Demonstration Teaching.

This course is eligible for an In Progress grade. Please see the Grading Scale Policy for more information.

This course covers the following competencies:

The graduate recommends improvements for instruction and professional practice through personal reflection.

The graduate integrates technology into classroom learning experiences to enhance student learning and monitor academic progress.

The graduate demonstrates ethical responsibilities and appropriate teaching dispositions, including those outlined in the Western Governors University Teachers College Code of Ethics.

The graduate recommends strategies that support the development of academic language for all students.

The graduate integrates a variety of strategies and resources to differentiate instruction and meet the needs of diverse learners.

The graduate develops appropriate plans for professional growth in subject matter knowledge and pedagogical skills, including habits and skills of continual inquiry and learning.

Cohort Seminar

Cohort Seminar provides mentoring and supports teacher candidates during their demonstration teaching period by providing weekly collaboration and instruction related to the demonstration teaching experience. It facilitates their demonstration of competence in becoming reflective practitioners, adhering to ethical standards, practicing inclusion in a diverse classroom, exploring community resources, building collegial and collaborative relationships with teachers, and considering leadership and supervisory skills.

This course is eligible for an In Progress grade. Please see the Grading Scale Policy for more information.

This course covers the following competencies:

The graduate demonstrates the ability to positively impact student learning through work samples, student artifacts, assessment results, and reflection.

The graduate recommends improvements for instruction and professional practice through personal reflection.

The graduate demonstrates ethical responsibilities and appropriate teaching dispositions, including those outlined in the Western Governors University Teachers College Code of Ethics.

The graduate recommends strategies for effectively collaborating with colleagues, parents, and community professionals to support student development, learning, and well being.

The graduate selects community resources that support students' non-instructional needs in and out of the classroom.

The graduate recommends strategies that support the development of academic language for all students.

The graduate integrates a variety of strategies and resources to differentiate instruction and meet the needs of diverse learners.

The graduate recommends effective strategies to maintain high levels of student engagement.

The graduate recommends best practices for classroom management, effective transitions, and pacing to maximize instructional time.

The graduate develops appropriate plans for professional growth in subject matter knowledge and pedagogical skills, including habits and skills of continual inquiry and learning.

