



Program Guidebook

Master of Arts, Science Education (5-12, Chemistry)

The Master of Arts in Science Education (5-12 Chemistry) is a competency-based degree program that prepares already licensed teachers both to be licensed to teach chemistry in grades 5-12 and to develop significant skills in science curriculum development, design, and evaluation. All work in this degree program is online and includes General Science and Chemistry (Grades 5-12) Content, and Science Education. All students complete a culminating Teacher Work Sample.

Understanding the Competency-Based Approach

Practically speaking, what does it mean when we say that WGU's programs are competency-based? Unlike traditional universities, WGU does not award degrees based on credit hours or on a certain set of required courses. Instead, you will earn your degree by demonstrating your skills, knowledge, and understanding of important concepts through a series of carefully designed courses.

Progress through your degree program is governed not by classes but by satisfactory completion of the required courses that demonstrate your mastery of the competencies. Of course, you will need to engage in learning experiences as you brush up on competencies or develop knowledge and skills in areas in which you may be weak. For this learning and development, WGU has a rich array of learning resources in which you may engage under the direction of your student mentor. You will work closely with your mentor to schedule your program for completing the courses. You will also work closely with additional faculty members as you proceed through courses of study that are designed to lead you through the content you must master in order to pass the assessment(s) for each course.

The benefit of this competency-based system is that it makes it possible for people who are knowledgeable about a particular subject to make accelerated progress toward completing a WGU 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, indeed, 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). The WGU Teachers College is accredited by the National Council for Accreditation of Teacher Education (NCATE). The nursing programs are accredited by the Commission on Collegiate Nursing Education (CCNE). The Health Informatics program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

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 will 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 may need to take an online class or participate in a study module to acquire the knowledge and skills needed to pass the 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, you will complete preassessments to help your mentor form a profile of your prior knowledge and experience for use in creating your personalized Degree Plan.

WGU's Mentoring Approach

The mentoring approach is a powerful component of the WGU educational experience. When you enroll at WGU, you will begin interacting with your student mentor, course mentors, and other support staff. Your student mentor will meet with you on a regular basis and take an active role and a personal interest in your success. Your student mentor will be your point of contact throughout your program and will be available to communicate with you via e-mail or phone. Your mentor will help you set weekly study goals, guide you to learning materials, help you understand what to expect in courses, and motivate you to work hard to complete your program. When you have questions or concerns, your mentor will help you resolve them.

As you work on each course, you will also be assigned course mentors. These course mentors are content experts who can discuss your learning for the course, help you find answers to content questions, and help you navigate the course successfully. Your course mentors are available to meet with you individually to provide personal support. You can also communicate with them by posting in the online learning community and participating in live discussion sessions such as webinars and cohorts.

Working closely with your own personal mentoring team will help you engage in the learning process and be a successful student while at WGU.

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 have interactions with faculty and other students.

The resources in each course are specifically designed to support you as you develop competencies in preparation for your assessments through the utilization of reading materials, videos, tutorials, cohort opportunities, community discussions, and live discussions that are guided by content experts. You will access your program community during your orientation course to network with peers who are enrolled in your program and to receive continued support through professional enrichment and program-specific chats, blogs, and discussions. WGU also provides Student Services Associates to help you and your mentor solve any special problems that may arise.

Orientation

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

Transferability of Prior College Coursework

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

[Click here for the Student Handbook](#)

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

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

Continuous Enrollment, On Time Progress, and Satisfactory Academic Progress

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

WGU requires that students make measurable progress toward the completion of their degree programs every term. We call this "On-Time Progress," denoting that you are on track and making progress toward on-time graduation. As full-time students, graduate students must enroll in at least eight (8) competency units each term, and undergraduate students must enroll in at least twelve (12) competency units each term. Completing at least these minimum enrollments is essential to On-Time Progress and serves as a baseline from which you may accelerate your program. We measure your progress based on the courses you are able to pass, not on your accumulation of credit hours or course grades. Every time you pass a course you are demonstrating that you have mastered skills and knowledge in your degree program. For comparison to traditional grading systems, passing a course means you have

demonstrated competency equivalent to a “B” grade or better.

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

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

Courses

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

External Content & Basic Skills Exams

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

State Licensure Requirements

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

Learning Resources

You will work with your mentor to select the various learning resources needed to prepare for the assessments in each course. In most cases, the learning materials you will use are independent learning resources such as textbooks, e-learning modules, study guides, simulations, virtual labs, and tutorials. WGU works with dozens of educational providers, including enterprises, publishers, training companies, and higher educational institutions to give you high-quality and effective instruction that matches the competencies that you are developing. The cost of most learning resources is included in your tuition, and you can enroll directly in those through your Degree Plan as your mentor has scheduled them. Some resources are not covered by your tuition, and you will need to cover those costs separately. WGU has excellent bookstore and library arrangements to help you obtain the needed learning resources.

Standard Path

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

Standard Path *for* Master of Arts, Science Education (5-12, Chemistry)

Course Description	CUs	Term
General Chemistry I	2	1
General Chemistry Laboratory I	1	1
General Chemistry II	2	1
General Chemistry Laboratory II	1	1
Precalculus and Calculus	2	1
Physical Chemistry	2	2
Inorganic Chemistry	2	2
Science, Technology, and Society	2	2
Climate Change	3	2
Organic Chemistry	2	3
Biochemistry	2	3
Chemistry: Content Knowledge	4	3
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Changes to Curriculum

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

Areas of Study for Master of Arts, Science Education (5-12, Chemistry)

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 Science Content

General Chemistry I

In this course students will attain a solid understanding of fundamental chemistry concepts and a reasonable ability to solve chemical problems. Topics include measurement, elements and compounds, properties of matter and energy, the periodic table and chemical nomenclature, quantities in chemistry, chemical reactions, the modern atomic theory, and the chemical bond. Laboratory work focuses on using effective laboratory techniques to examine the physical and chemical characteristics of matter.

This course covers the following competencies:

- *The graduate predicts the nature of chemical bonds formed between atoms from various elemental groups.*
- *The graduate applies the principles of measurement and the concepts of matter and energy to solve problems.*
- *The graduate applies the modern atomic theory to explain the structure of atoms and periodic trends.*
- *The graduate determines quantities of materials consumed and produced in chemical reactions using moles and stoichiometry.*
- *The graduate analyzes the structure of atoms and compounds and applies systems for naming compounds.*

General Chemistry Laboratory I

In this course students will attain a solid understanding of fundamental chemistry concepts and a reasonable ability to solve chemical problems. Topics include measurement, elements and compounds, properties of matter and energy, the periodic table and chemical nomenclature, quantities in chemistry, chemical reactions, the modern atomic theory, and the chemical bond. Laboratory work focuses on using effective laboratory techniques to examine the physical and chemical characteristics of matter.

This course covers the following competencies:

- *The graduate applies effective laboratory techniques to examine physical and chemical characteristics of matter.*

General Chemistry II

In this course students will attain a solid understanding of fundamental chemistry concepts and a reasonable ability to solve chemical problems. Topics include the gaseous state, the solid and liquid states, aqueous solutions, acid-base models, oxidation-reduction reactions, reaction rates and equilibrium, nuclear chemistry, organic chemistry, and biochemistry. Laboratory work focuses on using effective laboratory techniques to analyze chemical processes in real-world contexts.

This course covers the following competencies:

- *The graduate applies the collision theory to explain how various factors affect the rate and equilibrium of reactions.*
- *The graduate analyzes the fundamental concepts of organic chemistry and biochemistry.*

- *The graduate evaluates the dangers and benefits of naturally occurring radioactivity and induced nuclear changes.*
- *The graduate analyzes factors that affect the solubility of compounds and the composition and properties of aqueous solutions.*
- *The graduate examines practical applications of redox reactions by analyzing, predicting, and balancing oxidation-reduction reactions.*
- *The graduate applies acid-base models to analyze the properties, relative acidities, and reactions of acids and bases.*
- *The graduate applies models to explain the properties and behavior of gases, liquids, and solids and explore the process by which matter changes state.*

General Chemistry Laboratory II

In this course students will attain a solid understanding of fundamental chemistry concepts and a reasonable ability to solve chemical problems. Topics include the gaseous state, the solid and liquid states, aqueous solutions, acid-base models, oxidation-reduction reactions, reaction rates and equilibrium, nuclear chemistry, organic chemistry, and biochemistry. Laboratory work focuses on using effective laboratory techniques to analyze chemical processes in real-world contexts.

This course covers the following competencies:

- *The graduate applies effective laboratory techniques to analyze chemical processes in real-world contexts.*

Mathematics Content

Precalculus and Calculus

Precalculus and Calculus provides instruction in precalculus and calculus and applies them to examples found in both mathematics and science. Topics in precalculus include principles of trigonometry, mathematical modeling, and logarithmic, exponential, polynomial, and rational functions. Topics in calculus include conceptual knowledge of limit, continuity, differentiability, and integration.

This course covers the following competencies:

- *The graduate has a conceptual knowledge of limit, continuity, differentiability, and integration; and applies these concepts to examples in mathematics and the sciences.*
- *The graduate understands and applies the principles of trigonometry; mathematical modeling; and logarithmic, exponential, polynomial, and rational functions.*

Chemistry Content

Physical Chemistry

Physical Chemistry introduces the study of chemistry in terms of physical concepts. It includes thermodynamics, reaction kinetics, chemical equilibrium, electrochemistry, and matter.

This course covers the following competencies:

- *The graduate applies concepts of the second law of thermodynamics and free energy to predict the spontaneity of a process and analyze chemical equilibrium.*
- *The graduate applies models and equations of state to analyze properties of real gases.*
- *The graduate applies concepts of thermodynamics and electrochemistry to analyze the interchange of chemical and electrical energy.*
- *The graduate uses experimental data and kinetic models to analyze reaction rates and reaction mechanisms.*
- *The graduate applies the first law of thermodynamics to analyze heat transfers associated with chemical processes*

and changes in state.

Inorganic Chemistry

Inorganic Chemistry introduces the concepts of Inorganic chemistry—the branch of chemistry that studies the properties and behavior of any compound avoiding a specific focus on carbon. It will focus on the three most important areas of inorganic chemistry: the structure, properties, and reactions of various groups of inorganic compounds.

This course covers the following competencies:

- *The graduate analyzes atomic structure and can demonstrate major principles and rules of atomic structure.*
- *The graduate can demonstrate how the structure of a material's molecules can determine its strength and uses.*
- *The graduate demonstrates how atoms or ions in minerals are glued together by electrical bonds that are ionic or covalent, and computes the bond order in a molecule.*
- *The graduate demonstrates that groups of elements possess similar physical and chemical properties and can determine trends using the periodic chart.*
- *The graduate demonstrates properties of compounds and constructs models of bonding compounds and complex ions.*
- *The graduate demonstrates the microscopic and macroscopic features of solids and demonstrates how crystallography informs solid state chemistry.*

Climate Change

This course explores the science of climate change. Students will learn how the climate system works; what factors cause climate to change across different time scales and how those factors interact; how climate has changed in the past; how scientists use models, observations and theory to make predictions about future climate; and the possible consequences of climate change for our planet. The course explores evidence for changes in ocean temperature, sea level and acidity due to global warming. Students will learn how climate change today is different from past climate cycles and how satellites and other technologies are revealing the global signals of a changing climate. Finally, the course looks at the connection between human activity and the current warming trend and considers some of the potential social, economic and environmental consequences of climate change.

This course covers the following competencies:

- *The graduate interprets climate system factors to evaluate drivers and forcings related to climate change.*
- *The graduate evaluates models, observations, past evidence, and theories to understand the changing climate.*
- *The graduate utilizes knowledge of risks and uncertainties in predicting consequences of climate change to educate others.*
- *The graduate evaluates climate as a system and the components of the climate system.*

Organic Chemistry

Organic Chemistry focuses on the study of compounds that contain carbon, much of which is learning how to organize and group organic compounds in order to predict their structure, behavior, and reactivity based on common bonds found within an organic compound.

This course covers the following competencies:

- *The graduate uses drawings and models to communicate and predict the structure and shape of organic molecules.*
- *The graduate applies concepts of acid-base chemistry to determine the relative acidities of organic acids and the position of equilibrium in an acid-base reaction.*
- *The graduate analyzes properties and reactions of important organic compounds, including aromatic compounds.*
- *The graduate applies concepts of stereochemistry to analyze organic molecules.*

- *The graduate applies the IUPAC nomenclature to name organic molecules.*
- *The graduate applies mechanisms to analyze organic reactions, including organic synthesis.*
- *The graduate applies instrumental methods of analysis to determine the structure of organic compounds.*

Biochemistry

Biochemistry covers the structure and function of the four major polymers produced by living organisms. These include nucleic acids, proteins, carbohydrates, and lipids.

This course focuses on application! Be sure to understand the underlying biochemistry in order to grasp how it is applied. By successfully completing this course, you will gain an introductory understanding of the chemicals and reactions that sustain life. You will also begin to see the importance of this subject matter to health.

This course covers the following competencies:

- *The graduate constructs models of enzymes, demonstrates how enzymes act as a catalyst in a reaction, including factors that influence this reaction, and solves enzyme and pathway problems.*
- *The graduate constructs models of fatty acids and demonstrates why lipids are essential to the functioning of cells.*
- *The graduate demonstrates how nucleic acid polymers can transform cells and transmit information within the cell.*
- *The graduate constructs models of the structure and function of amino acids and peptide bonds, predicts ionization of an amino acid, demonstrates peptide bond breaking, and demonstrates how protein structure affects susceptibility or resistance to disease.*
- *The graduate constructs models of carbohydrates, demonstrates metabolism of carbohydrates, and demonstrates how adenosine triphosphate (ATP) is essential to energy transfer in the cell and how irregularities in ATP synthesis in the cell can cause cytopathologies.*
- *The graduate constructs models of various states of hemoglobin, demonstrates how changes in the usual configuration of hemoglobin can lead to molecular disease, and distinguishes between the chemical structure and function of hemoglobin and myoglobin.*

Chemistry: Content Knowledge

Chemistry: Content Knowledge provides advanced instruction in the main areas of chemistry for which secondary chemistry teachers are expected to demonstrate competency. Topics include matter and energy, thermochemistry, structure, bonding, reactivity, biochemistry and organic chemistry, solutions, nature of science, technology and social perspectives, mathematics, and laboratory procedures.

This course covers the following competencies:

- *The graduate analyzes atomic structure and can demonstrate major principles and rules of atomic structure.*
- *The graduate understands and provides safe, effective, research-based instruction in science.*
- *The graduate solves problems of interprets phase diagrams based on laboratory activities.*
- *The graduate applies concepts of the second law of thermodynamics and free energy to predict the spontaneity of a process and analyze chemical equilibrium.*
- *The graduate uses drawings and models to communicate and predict the structure and shape of organic molecules.*
- *The graduate applies concepts of acid-base chemistry to determine the relative acidities of organic acids and the position of equilibrium in an acid-base reaction.*
- *The graduate constructs models of fatty acids and demonstrates why lipids are essential to the functioning of cells.*
- *The graduate analyzes properties and reactions of important organic compounds, including aromatic compounds.*
- *The graduate applies principles of geochemistry to demonstrate the chemical cause and process of acid rain and solves problems involving ozone depletion.*
- *The graduate applies basic principles of geochemistry to identify the sources and mechanisms of contamination of*

groundwater and completes original research in chemistry.

- *The graduate demonstrates how atoms or ions in minerals are glued together by electrical bonds that are ionic or covalent, and computes the bond order in a molecule.*
- *The graduate applies models and equations of state to analyze properties of real gases.*
- *The graduate demonstrates how nucleic acid polymers can transform cells and transmit information within the cell.*
- *The graduate applies concepts of stereochemistry to analyze organic molecules.*
- *The graduate applies concepts of thermodynamics and electrochemistry to analyze the interchange of chemical and electrical energy.*
- *The graduate demonstrates that groups of elements possess similar physical and chemical properties and can determine trends using the periodic chart.*
- *The graduate uses experimental data and kinetic models to analyze reaction rates and reaction mechanisms.*
- *The graduate applies the IUPAC nomenclature to name organic molecules.*
- *The graduate applies mechanisms to analyze organic reactions, including organic synthesis.*
- *The graduate demonstrates the cause and effect of atmospheric carbon dioxide and other greenhouse gases on climate change.*
- *The graduate applies instrumental methods of analysis to determine the structure of organic compounds.*
- *The graduate constructs models of the structure and function of amino acids and peptide bonds, predicts ionization of an amino acid, demonstrates peptide bond breaking, and demonstrates how protein structure affects susceptibility or resistance to disease.*
- *The graduate applies the first law of thermodynamics to analyze heat transfers associated with chemical processes and changes in state.*
- *The graduate constructs models of carbohydrates, demonstrates metabolism of carbohydrates, and demonstrates how adenosine triphosphate (ATP) is essential to energy transfer in the cell and how irregularities in ATP synthesis in the cell can cause cytopathologies.*

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 prepares educators to explain the nature and history of science, the various applications of science, and the scientific and engineering processes used to conduct investigations, make decisions, and solve problems. There are no prerequisites for this course.

This course covers the following competencies:

- *The graduate conducts investigations in science to solve open-ended problems using appropriate scientific methods.*
- *The graduate analyzes the historical development of science, including how scientific knowledge evolves.*
- *The graduate analyzes the various ways in which science, technology, and society are interrelated.*
- *The graduate analyzes the nature of science, including how science distinguishes itself from other ways of knowing.*
- *The graduate analyzes the relationships among themes that appear across multiple scientific ideas.*
- *The graduate formulates testable hypotheses for scientific investigations.*
- *The graduate analyzes socially relevant scientific issues to make informed decisions based on data and context.*
- *The graduate uses technology tools and mathematics to improve investigations and the communication of results.*

- *The graduate analyzes the principles, processes, and assumptions of investigations in science to engage students in the nature of inquiry.*

Science Teaching and Learning

This course focuses on how to teach science and on preparing preservice science educators to teach science in a way that is accurate, current and engaging. Topics include models for teaching science through inquiry, evaluation of alignment to standards, effective use of learning communities, formative assessment strategies, and safety responsibilities.

This course covers the following competencies:

- *The graduate integrates formative assessment strategies into the design of learning activities and curriculum.*
- *The graduate develops emergency response plans for the science classroom that account for various potential emergencies.*
- *The graduate integrates various models for teaching science through inquiry into the design of learning activities and curriculum.*
- *The graduate creates appropriate resources for communicating safety and emergency procedures to students.*
- *The graduate integrates the legal and ethical responsibilities of a science teacher into the design of instruction.*
- *The graduate develops plans for the use, storage, and maintenance of science materials and safety equipment and the care of living organisms.*
- *The graduate evaluates the quality of a unit of study with regard to pedagogical strength and alignment to science education standards.*
- *The graduate integrates learning communities that foster understanding into the design of learning activities and curriculum.*

Teacher Work Sample

MA, Science Education (5-12, Chemistry) Teacher Work Sample

MA, Science Education (5-12, Chemistry) Teacher Work Sample 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 Work Sample requires students to plan and teach a multi-week standards-based instructional unit consisting of seven components: 1) Contextual factors, 2) learning goals, 3) assessment, 4) design for instruction, 5) instructional decision making, 6) analysis of student learning, and 7) self-evaluation and reflection.

This course covers the following competencies:

- *The graduate integrates strategies to develop academic language that facilitates effective student participation and engagement in learning.*
- *The graduate demonstrates ethical responsibilities and appropriate teaching dispositions, including those outlined in the Western Governors University Teachers College Code of Ethics.*
- *The graduate utilizes assessment data to profile student learning, communicate information about student progress and achievement, and guide and modify instruction.*
- *The graduate evaluates the teaching context to accommodate student differences to plan for instruction and assessment.*
- *The graduate plans comprehensive learning segments of instruction and assessment that align with standards and the needs of students.*
- *The graduate evaluates teaching experiences including the planning and implementing of curriculum and instruction through ongoing reflection.*
- *The graduate recommends strategies that support the development of academic language for all students.*

- *The graduate recommends various strategies to differentiate instruction to meet the diverse needs of individual students.*
- *The graduate recommends improvements for instruction and professional practice through personal reflection.*
- *The graduate integrates and synthesizes competencies from across the degree program and thereby demonstrates the ability to participate in and contribute value to the chosen professional field.*
- *The graduate develops appropriate plans for professional growth in subject matter knowledge and pedagogical skills, including habits and skills of continual inquiry and learning.*
- *The graduate plans learning environments that support individual learning, collaboration, and positive social interaction.*
- *The graduate applies instructional strategies that promote learning, engage students, and provide differentiated instruction.*

Need More Information? WGU Student Services

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

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

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

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