Program Guidebook

Bachelor of Science, Science Education (Secondary Chemistry)

The Bachelor of Science, Science Education (Secondary Chemistry) is a competency based degree program that prepares students to be licensed as secondary chemistry 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, Chemistry Content, Pedagogy, Science Education, Field Experience, and Demonstration Teaching.

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

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

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

Accreditation

Western Governors University is the only university in the history of American higher education to have

(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 yuD 11 >>uos2), which reaf

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

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

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

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

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, community discussions, and live discussions that are guided by course instructors who are experts in their field. 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 program mentor solve any special

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. WGU undergraduate programs may accept transfer credits or apply a

'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

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

Continuous Enrollment, On Time Progress, and Satisfactory Academic Progress

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

WGU requires that students make measurable progress toward the completion of their degree programs every term. We call this "On-Time Progress," denoting that you are on track and making progress toward on-time graduation. As full-time students, graduate students must enroll in at least 8 competency units each term, and undergraduate students must enroll in at least 12 competency units each term. 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

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

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

Courses

Your Degree Plan includes courses needed to complete your program. To obtain your degree, you will be

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

Standard Path *for* Bachelor of Science, Science Education (Secondary Chemistry)

Course Description	CUs
Composition: Writing with a Strategy	3
The School as a Community of Care	3
Introduction to Communication: Connecting with Others	3
Integrated Physical Sciences	3
Introduction to Biology	3
Applied Probability and Statistics	3
Composition: Successful Self-Expression	3
US History: Stories of American Democracy	3
Educational Foundations	2
Concepts in Science	2
Educational Psychology and Development of Children and Adolescents	4
Fundamentals of Diverse Learners	4
College Algebra	4
Natural Science Lab	2
General Chemistry I with Lab	4
Trigonometry and Precalculus	4
Managing Engaging Learning Environments	3
General Chemistry II with Lab	4
Global Arts and Humanities	3
Introduction to Curriculum, Instruction, and Assessment	3
Physical Chemistry	3
Assessing Impact on Student Learning	3
Calculus I	4
Educational Technology for Teaching and Learning	3
Inorganic Chemistry	3
Organic Chemistry	3
Biochemistry	3
Science, Technology, and Society	5
Climate Change	4
Science Methods—Secondary Chemistry	4
Chemistry: Content Knowledge	2
Secondary Reading Instruction and Interventions	3
Secondary Disciplinary Literacy	3
Preclinical Experiences in Science	3

Course Description	CUs
Student Teaching I in Secondary Education	6
Teacher Performance Assessment in Science	3
Professional Portfolio	2
Cohort Seminar	3
Student Teaching II in Secondary Education	6

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. When program requirements are updated, students readmitting after withdrawal from the university will be expected to

Areas of Study for Bachelor of Science, Science Education (Secondary 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 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

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 competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The individual writes with purpose for a given context and target audience.

The individual incorporates writing strategies and techniques for written communication.

The individual constructs a written document with correct format, style, structure, and grammar.

The individual formulates a strategy for editing and revising written text.

The individual composes constructive feedback of written texts.

Introduction to Communication: Connecting with Others

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 are invaluable to strengthening a multitude of aspects of life. Specifically, this course will focus on communication in the professional setting, and present material from multiple vantage points, including communicating with others in a variety of contexts, across situations, and with diverse populations. Upon completion, you will have a deeper understanding of both your own and others' communication behaviors, and a toolbox of effective behaviors to enhance your experience in the workplace.

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The learner implements appropriate communication styles based on audience and setting.

The learner uses communication strategies for managing conflict.

The learner uses communication strategies to influence others.

Integrated Physical Sciences

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

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The learner describes the nature and process of science.

The learner examines applications of physics including fundamental concepts such as forces, motion, energy, and waves.

The learner examines applications of key chemistry concepts including the structure of matter and the behavior and conservation of matter in chemical reactions.

The learner describes the underlying organization, interactions, and processes within the Earth system including the Earth's structure and atmosphere, and Earth's interactions within the solar system.

Applied Probability and Statistics

Applied Probability and Statistics is designed to help students develop competence in the fundamental concepts of basic statistics including: introductory algebra and graphing; descriptive statistics; regression and correlation; and probability. Statistical data and probability are often used in everyday life, science, business, information technology, and educational settings to make informed decisions about the validity of studies and the effect of data on decisions. This course discusses what constitutes sound research design and how to appropriately model phenomena using statistical data. Additionally, the

The learner incorporates self-expression in written communication.

US History: Stories of American Democracy

explores how historical events and major themes in American history have affected diverse populations, influenced changes

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

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

This course provides further application and analysis of algebraic concepts and functions through mathematical modeling of real-world situations. Topics include: real numbers, algebraic expressions, equations and inequalities, graphs and functions, polynomial and rational functions, exponential and logarithmic functions, and systems of linear equations.

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate classifies and performs operations on real numbers; solves linear equations and inequalities; connects a linear equation to its graph; and identifies a function.

The graduate solves systems of linear equations and their related applications.

The graduate simplifies and factors polynomial expressions, and solves polynomial equations.

The graduate simplifies rational, radical, and quadratic expressions, solves corresponding equations, and extends this knowledge to the study of functions.

The graduate combines functions, finds inverse functions, solves exponential and logarithmic equations and functions.

Natural Science Lab

This course provides students an introduction to using the scientific method and engaging in scientific research to reach conclusions about the natural world. Students will design and carry out an experiment to investigate a hypothesis by gathering quantitative data. They will also research a specific ecosystem using academic sources and draw conclusions from their findings.

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 evaluates academic sources for their credibility and relevance to a chosen research topic on a natural world phenomenon.

The graduate accurately executes the process of scientific inquiry through experimentation in the natural world.

The graduate draws conclusions based on academic research and scientific inquiry.

Global Arts and Humanities

This is a Global Arts and Humanities course that contains three modules with corresponding lessons. This course is an

invitation to see the world through the humanities, examine the humanities during the Information Age, and explore the global origins of music—essentially questioning what makes us human, and how people are connected across culture and time. Each module includes learning opportunities through readings, videos, audio, and other relevant resources. Assessment activities with feedback also provide opportunities to practice and check learning. With no prior knowledge or exptrSgpdqsne le /Lavportuni>lored asee tpehec30-40 peur mun

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, linc/sassessur course planning tool report with yok th yok thsses

The graduate evaluates 1the application of educational best practices in diverse learning in
of verse lear271 rg/Cer0.27ices>BDC 0.271ning and devdecicensTf-1.439 -1.817 Td<01941>Tj/T1_0 1 Tf( )TjEMC /LBody <</MCID 7

The graduate explores p19he application of educational best practices in diverse learciples from the area/Lbl <</MCID 4 > course plan

, theories of hutorabilo sval(IicludT Dyslexia), theories ohoeprngEnglish rgguated and dis,d /Pdates comheories ohoeprnggifnt. -cutta*

Begin your course by d2theories of development across the cognit with your instructor and creating your personalized course plan together.

’ The graduate explores p2athways and opportunities for professional developmC /Les niclusopr s
The graduate explores p29he application of educational best practices in diC /Les s

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 also increasing their awareness of ethical usage and considerations related to equity, access to technology, and appropriate use of technology by P–12 students. Assistive technologies to meet the needs of a diverse learner population also will be taught in this course. Candidates will engage in three hours of preclinical experience that include virtual observations of classroom practices incorporating technology to support educational goals. 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 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.

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 characteristics and classifications of living organisms.

The graduate analyzes the basic chemical composition of cells and the basic processes that happen at the cellular level.

The graduate analyzes different types of cells based on their structures and biological functions.

The graduate analyzes the biological basis for and patterns of heredity and gene expression.

matter.

The graduate determines the electronic structure of atoms and periodic trends to explain the characteristics and behaviors of chemicals

The graduate applies IUPAC rules to name compounds and write chemical formulas.

The candidate distinguishes the ways in which chemical bonds and electron orientation impact the structures and behavior of molecules to understand the composition of matter.

The graduate writes balanced chemical equations to follow the Law of the Conservation of Mass.

The graduate applies principles of stoichiometry to determine quantities of materials consumed and produced in chemical reactions.

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.

General Chemistry II with Lab

C374: General Chemistry II with Lab for undergraduates continues the study of general chemistry for students seeking initial teacher licensure in secondary chemistry. Building on the topics covered in General Chemistry I, General Chemistry II examines the behavior of gases and solutions, reaction rates and equilibrium, acids and bases, and oxidation-reduction reactions. Also, this course provides an introduction to three sub-disciplines of chemistry: organic chemistry, biochemistry, and nuclear chemistry. Laboratory experiences reinforce the essential skills required for conducting successful scientific investigations. C373: General Chemistry I 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 conducts effective scientific investigations to analyze chemical processes in real-world contexts.

The graduate applies the gas laws to solve problems involving the relationships between volume, pressure, and temperature.

The graduate applies chemical kinetics to alter reaction rates and equilibrium.

The graduate determines the concentrations of solutions to generate new solutions and calculate their reactions.

The graduate examines how acids and bases react to predict the outcomes of chemical reactions.

The graduate analyzes oxidation-reduction (redox) reactions to examine the practical application of electrochemistry.

The graduate analyzes nuclear reactions to determine the nature of the nuclear decay.

The graduate determines the composition of key organic biochemical compounds to distinguish various macromolecules.

Physical Chemistry

kinetics, chemical equilibrium, electrochemistry, and matter.

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 the first law of thermodynamics to analyze heat transfers associated with chemical processes and changes in state.

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.

Inorganic Chemistry

Inorganic Chemistry introduces the concepts of inorganic chemistry—the branch of chemistry that studies the properties and

chemistry: the structure, properties, and reactions of various groups of inorganic compounds.

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 atomic structure and can demonstrate major principles and rules of atomic structure.

The graduate demonstrates that groups of elements possess similar physical and chemical properties and can determine trends using the periodic chart.

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 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.

The graduate can demonstrate how the structure of a material's molecules can determine its strength and uses.

Organic Chemistry

This course focuses on the study of compounds that contain carbon, much of which is learning how to organize and group these compounds based on common bonds found within them in order to predict their structure, behavior, and reactivity.

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 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 applies the IUPAC nomenclature to name organic molecules.

The graduate applies concepts of stereochemistry to analyze organic molecules.

The graduate applies mechanisms to analyze organic reactions, including organic synthesis.

The graduate analyzes properties and reactions of important organic compounds, including aromatic compounds.

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:

Begin your course by discussing the results of your Course Planning Assessment with your Course Instructor and design a course plan together.

The graduate demonstrates how nucleic acid polymers can transform cells and transmit information within the cell.

The graduate explains how the structure and composition of amino acids and proteins impact the human body.

The graduate explains how the structure and function of myoglobin and hemoglobin impact the human body.

The graduate explains how the structure and function of enzymes and inhibitors in reactions impact the human body.

The graduate analyzes the role of ATP in carbohydrate metabolism and the impact of irregular ATP synthesis on the human body.

The graduate explains how lipids are essential to the normal function of cells and the impact of abnormal lipid

metabolism on the human body.

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, the nature of science and technology, mathematics, and laboratory procedures.

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 synthesizes concepts and processes from across chemistry to generate a comprehensive understanding of the field.

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

Mathematics Content

Trigonometry and Precalculus

Trigonometry and Precalculus covers the knowledge and skills necessary to apply trigonometry, complex numbers, systems of equations, vectors and matrices, sequence and series, and to use appropriate technology to model and solve real-life problems. Topics include degrees; radians and arcs; reference angles and right triangle trigonometry; applying, graphing and transforming trigonometric functions and their inverses; solving trigonometric equations; using and proving trigonometric identities; geometric, rectangular, and polar approaches to complex numbers; DeMoivre's Theorem; systems of linear equations and matrix-vector equations; systems of nonlinear equations; systems of inequalities; and arithmetic and geometric sequences and series. College Algebra 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 applies trigonometric ratios and triangle formulas to model and solve real-life problems.

The graduate uses a unit circle to define trigonometric functions and applies these functions to model and solve real-life problems.

The graduate proves trigonometric identities and solves trigonometric equations.

The graduate applies various representations of complex numbers to solve problems.

The graduate uses systems of equations, systems of inequalities, and matrices to model and solve real-life problems.

The graduate explores arithmetic and geometric sequences and uses them to model and solve real-life problems.

Calculus I

Calculus I is the study of rates of change in the slope of a curve and covers the knowledge and skills necessary to use differential calculus of one variable and technology to solve basic problems. Topics include graphing functions and finding their domains and ranges; limits, continuity, differentiability, visual, analytical, and conceptual approaches to the definition of the derivative; the power, chain, and sum rules applied to polynomial and exponential functions, position and velocity; and L'Hopital's Rule. Precalculus 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 demonstrates a conceptual understanding of limits and finds limits of functions.

The graduate demonstrates a conceptual understanding of and solves problems involving continuity, and defines the relationship of continuity to differentiability and integrability.

The graduate demonstrates a conceptual understanding of differentiation and applies differentiation techniques to solve problems and aid in function graphing.

The graduate applies differentiation in various ways to solve problems.

Secondary Reading Instruction and Interventions

Secondary Reading Instruction and Interventions explores the comprehensive, student-centered response to intervention (RTI) model used to identify and address the needs of learners in middle school and high school who struggle with reading comprehension and/or information retention. Course content provides educators with effective strategies designed to scaffold instruction and help learners develop increased skill in the following areas: reading, vocabulary, text structures and genres, and logical reasoning related to the academic disciplines. This course is designed to be taken after successful

and Presentation AND Instructional Planning and Presentation in Special Education.

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate explains how the Response to Intervention (RTI) approach identifies, monitors, and differentiates instruction to ensure that struggling readers obtain the appropriate support and interventions to improve academic progress.

The graduate develops effective vocabulary instruction to enhance students' reading comprehension in the content areas.

The graduate integrates knowledge of effective comprehension strategies to help students monitor and improve their own comprehension when reading.

The graduate integrates reading strategies that scaffold instruction for students when reading increasingly complex texts.

The graduate integrates reading assessments to make informed instructional and placement decisions.

Secondary Disciplinary Literacy

Secondary Disciplinary Literacy examines teaching strategies designed to help learners in middle and high school improve upon the literacy skills required to read, write, and think critically while engaging content in different academic disciplines. Themes include exploring how language structures, text features, vocabulary, and context influence reading comprehension across the curriculum. The course highlights strategies and tools designed to help teachers assess the reading comprehension and writing proficiency of learners and provides strategies to support students' reading and writing success in all curriculum areas. 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 distinguishes between the basic strategies used to facilitate comprehension in the content areas and the specialized reading practices needed to comprehend text in a specific discipline.

The graduate integrates discipline-specific literacy instruction to help students understand the text structures, vocabulary, and language knowledge required for specific disciplines.

The graduate plans writing activities that promote understanding of discipline-specific content through the organization, analysis, and synthesis of ideas.

The graduate creates authentic learning tasks and activities that provide students with opportunities to demonstrate discipline specific understandings.

The graduate integrates instructional strategies and materials in disciplinary literacy practices to enhance student understanding within the disciplines.

Field Experience

Preclinical Experiences in Science

Preclinical Experiences in Science provides students the opportunity to observe and participate in a wide range of in-classroom teaching experiences in order to develop the skills and confidence necessary to be an effective teacher. Students will reflect on and document the 75 hours of in-classroom observation and experience in their performance assessments. Prior to entering the classroom for the observations, students will be required to meet several requirements including a cleared background check, passing scores on the state or WGU required basic skills exam and a completed resume.

This course covers the following competencies:

The graduate develops a classroom management plan that integrates best practices for engagement and motivation.

The graduate evaluates the theoretical and practical implications of various content knowledge applications, tools of

Teacher Performance Assessment in Science course is a culmination of the wide variety of skills learned in the Teachers College at WGU. In order to be a competent and independent classroom teacher, students will showcase a collection of

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 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

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 subjateom271 0.27Clca960g 1 ledgipatiosAedagogponsiskydskyds esIt sysons,rienceC irpaIonbl <propriate Tfl3c3 0.271 0 This course is eligible for an In Progress grade. Please see the Grading Scale

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.

Accessibility and Accommodations

Western Governors University is committed to providing equal access to its academic programs to all qualified

collaboration, and academic accommodations for students with disabilities and other qualifying conditions under the Americans with Disabilities Act (ADA). WGU encourages student to complete the Accommodation Request Form as soon as they become aware of the need for an accommodation. Current and prospective students can reach the Accessibility Services team Monday through Friday 8:00 a.m. to 5:00 p.m. MST at 1-877-HELP-WGU (877-435-7948) x5922 or at ADASupport@wgu.edu.

Need More Information? WGU Student Services

WGU's Student Services team is dedicated exclusively to helping you achieve your academic goals. The Student Services office is available during extended hours to assist with general questions and requests. The Student Services team members help you resolve issues, listen to student issues and concerns, and

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.,

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

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