



## Program Guidebook

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### Bachelor of Arts, Educational Studies in Secondary Biological Science Education

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*The Bachelor of Arts, Educational Studies in Science Education (Secondary Biological Science) includes content knowledge related to secondary Biology teaching. This program consists of online courses which take the learner from general education, through methods of instruction, Biology content, assessment, and classroom management to secondary education courses for interacting with secondary-level students. It does not include supervised clinical experiences in a real classroom and does not meet the requirements for initial teacher licensure. This program is for individuals who, for various reasons, want academic knowledge that relates to teaching, but who cannot or do not want to participate in clinical experiences to be eligible to teach as a result of completing the program. This is a non-licensure program and will not, in any state, lead to an institutional recommendation for licensure.*

# Understanding the Competency-Based Approach

How do competency-based programs like those offered at Western Governors University (WGU) work? Unlike traditional universities, WGU does not award degrees based on completing a certain number of credit hours or a specific set of required courses. Instead, you will earn your degree by demonstrating your skills, knowledge, and understanding of essential concepts.

Progress through a degree program is measured not by the amount of time you spend in class but by your ability to demonstrate competency as you complete required courses along a Standard Path. To help you acquire the knowledge and skills you need to demonstrate competency and 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 your program's requirements and help you create a plan for completing your courses. You will also work closely with course instructors as you engage in each course. As subject matter experts, course instructors will guide you through the content you must learn to demonstrate competency through the course assessments.

The benefit of this competency-based system is that it enables students who are knowledgeable about a particular subject to make accelerated progress toward completing a degree, even if they lack college experience. You may have gained skills and knowledge of a subject while on the job, accumulated wisdom through years of life experience, or already taken a course on a particular subject. WGU will award your degree based on the skills and knowledge you possess and can demonstrate—not the number of hours spent in a classroom.

## Accreditation

Western Governors University is the only university in the history of American higher education to have earned initial accreditation from multiple regional accrediting commissions at once—earning simultaneous accreditation from ACCJC, HLC, NWCCU, and WASC. The university's accreditation from the Northwest Commission on Colleges and Universities (NWCCU) was reaffirmed in March of 2024. In addition to institution-level accreditation, each school has at least one program that is accredited by a programmatic accreditor. All programmatic accreditations are managed by the Academic Engagement department. Contact [compliance@wgu.edu](mailto:compliance@wgu.edu) for additional information.

## The Degree Plan

The focus of your program is your personalized Degree Plan. The Degree Plan is a detailed blueprint of the courses you will need to complete in order to earn your degree. The Degree Plan also lays out the accompanying learning resources and assessments that compose your program. The list of courses in the Degree Plan is often referred to as the standard path. The amount of time it takes to complete your program depends on both the amount of new information you need to learn and the amount of time you plan to devote each week to study.

Students vary widely in the specific skills and information they need to learn. For example, some students may be highly knowledgeable in a particular subject matter and would not need to engage in new learning opportunities. Other students may find that portions of the program require them to learn new information and that they need to take an online class or participate in a study module to acquire the knowledge and skills needed to fulfill program competencies in that area. Some individuals may be able to devote as little as 15–20 hours per week to the program, while others may need to devote more time. For this reason, pre-assessments are there to help your program mentor form a profile of your prior knowledge and create a personalized Degree Plan.

## How You Will Interact with Faculty

At WGU, faculty serve in specialized roles, and they will work with you individually to provide the guidance, instruction, and support you will need to succeed and graduate. As a student, it is important for you to take advantage of this support. It is key to your progress and ultimate success.

Upon your enrollment, you will be assigned a program mentor—an expert in your field of study who will provide you with regular program-level guidance and support from the day you start until the day you graduate. Your program mentor will set up regular telephone appointments (weekly at first) with you, which you will be expected to keep. The mentor will review program competencies with you and work with you to develop a plan and schedule for your coursework. Your program mentor will serve as your main point of contact throughout your program—helping you set weekly study goals, recommending specific learning materials, telling you what to expect in courses, and keeping you motivated. In addition to regular calls, your program mentor is available to help you resolve questions and concerns as they arise.

For many of the courses at WGU, you will be required to complete performance assessments. These include reports, papers, presentations, and projects that let you demonstrate your mastery of the required competencies. A separate group of faculty members, called evaluators, will review your work to determine whether it meets requirements. Evaluators are also subject matter experts in their field of evaluation. If your assessment needs further work before it “passes,” these evaluators, who review your work anonymously, will provide you with instructional feedback to help you meet evaluation standards and allow you to advance.

## Connecting with Other Mentors and Fellow Students

As you proceed through your Degree Plan, you will have direct contact with multiple faculty members. These communications can take a variety of forms, including participation in one-on-one discussions, chats in the learning communities, and live cohort and webinar opportunities. As a WGU student, you will have access to your own personal MyWGU Student Portal, which will provide a gateway to your courses of study, learning resources, and learning communities where you will interact with faculty and other students.

The learning resources in each course are specifically designed to support you as you develop competencies in preparation for your assessments. These learning resources may include reading materials, videos, tutorials, cohort opportunities, 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 problems that may arise.

## Orientation

The WGU Orientation course will introduce you to the fundamentals of WGU’s competency-based education (CBE) and the expectations, policies, and protocols for students enrolled in a WGU degree program. Orientation will introduce you to WGU’s wide range of support resources and success centers. It also will provide you with study strategies recommended by current students and faculty that will help you succeed as a WGU student. Orientation ends with your first assessment at WGU, providing an opportunity to experience WGU’s performance assessment process before you begin your degree-focused coursework. 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. Students entering graduate programs must have their undergraduate degree transcripts verified before being admitted to WGU. In addition to a program's standard course path, there may be additional state-specific requirements.

[Click here for the Student Handbook](#)

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

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

## 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-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 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 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.

## Courses

Your Degree Plan includes courses needed to complete your program. To obtain your degree, you must demonstrate your skills and knowledge by completing each course's assessment(s). You may be asked to demonstrate competency in a course in several different ways, including proctored exams, projects, essays, research papers, and simulations, among others. Certifications verified through third parties may also be included in your program as a way to demonstrate competency. More detailed information about each assessment is provided in the 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

Some 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

WGU works with many different educational partners, including enterprises, publishers, training companies, and higher educational institutions, to provide high-quality and effective learning resources that match the competencies you are developing. These vary in type, and may be combined to create the best learning experience for your course. A learning resource can be an e-textbook, online module, study guide, simulation, virtual lab, tutorial, or a combination of these. The cost of most learning resources are included in your tuition and Learning Resource Fee. They can be accessed or enrolled for through your courses. Some degree-specific resources are not covered by your tuition, and you will need to cover those costs separately. WGU also provides a robust library to help you obtain additional learning resources, as needed.

Mobile Compatibility:

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

[Mobile Access for Learning Resources](#)

## Standard Path

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

## Standard Path *for* Bachelor of Arts, Educational Studies in Secondary Biological Science Education

Course Description	CUs
The Professional Educator	3
Composition: Writing with a Strategy	3
Introduction to Communication: Connecting with Others	3
Learners and Learning Science	3
Composition: Successful Self-Expression	3
General Earth Science I	3
General Earth Science I Lab	1
Personalized Learning for Inclusive Classrooms	3
Quantitative Literacy	3
Creating Positive Learning Environments	3
Introduction to Systems Thinking and Applications	3
General Biology I	3
General Biology I Lab	1
Planning Instructional Strategies for Meaningful Learning	3
Technology and Ethics: Emerging Trends and Society	3
Assessing and Monitoring Student Learning	3
Probability and Statistics	3

Instructional Technology and Online Pedagogy	3
General Chemistry I	3
General Chemistry I Lab	1
American Politics and the US Constitution	3
General Secondary Methods	3
Three Dimensional Science and Engineering	3
General Physics I	3
General Physics I Lab	1
General Biology II	3
Secondary Literacy Methods and Interventions	3
Molecular Biology	3
General Ecology	3
Secondary Science Teaching Methods	3
Cell Biology	3
Genetics	3
Laboratory Safety	1
Evolutionary Biology	3
Advanced Zoology and Botany with Lab	4
Secondary Biology Curriculum	3

Secondary Disciplinary Literacy	3
Total CUs	102

## 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 re-enter into the most current catalog version of the program.



# Areas of Study for Bachelor of Arts, Educational Studies in Secondary Biological Science Education

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.

## **Professional Core**

### **The Professional Educator**

The Professional Educator prepares WGU students to excel in the exciting and impactful profession of being an educator. Additionally, the course addresses the importance of continuous professional development and ethical considerations in teaching through the School of Education (SOE) Professional Dispositions and Ethics. Upon completion of the course, WGU students will be equipped with the tools and insights needed to continue their professional journey of becoming effective, inspiring, and adaptive educators, capable of making a significant impact in the lives of their students and the broader educational community. (This is not a transferable 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 learner analyzes the impact of professional dispositions and ethics in engaging with others and making decisions.*
- *The learner examines program requirements, regulations, and the utilization of tools to navigate through the program.*
- *The learner reflects on professional dispositions and ethics in their own education and career.*

### **Learners and Learning Science**

Learners and Learning Science provides WGU students with a deep understanding of the science behind learning processes. This course covers a broad spectrum of topics pertaining to the science of learning, including cognitive development, learning theories, neuroscience in education, and the impact of developmental milestones on learning. Students will explore how these concepts apply to learning environments and educational levels, from early childhood through adolescence. The course emphasizes evidence-based practices and the practical application of learning science principles, equipping students with strategies to enhance learning outcomes and student engagement. This course aims to empower educators to create more effective, inclusive, and engaging learning experiences for all learners.

*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 examines how principles of neuroscience are applied in instructional practices.*
- *The learner examines how theories of learning science and learner growth and development influence educational practices.*
- *The learner recommends instructional techniques based on principles of learning science that will positively impact learning.*

### **Personalized Learning for Inclusive Classrooms**

Personalized Learning for Inclusive Classrooms empowers educators to create more inclusive and effective learning environments. This course focuses on the principles and strategies of personalized learning, emphasizing the need to value and support the unique needs, interests, and abilities of each learner. The course provides a foundation for learner characteristics of learners with exceptionalities and other unique learning needs. This course helps candidates develop skills for partnering with parents and families to advocate for all students with exceptionalities, including those impacted by provisions of the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act. Multitiered systems of support are addressed to prepare candidates for their future classrooms as they seek to select appropriate instructional practices and interventions to best serve their learners. These factors are also addressed in relation to online and hybrid learning environments.

*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 applies MTSS to address the needs of all students.*
- *The learner examines policies, practices, and legal requirements to inform educator practice.*
- *The learner identifies characteristics of students with various learning needs.*

## **Creating Positive Learning Environments**

Creating Positive Learning Environments delves into the key elements that contribute to creating and maintaining a positive learning atmosphere for educators focused on fostering supportive and productive classroom climates. The course teaches effective communication, classroom norms and routines, and positive behavior supports. Emphasizing the importance of a safe and inclusive environment, the course also explores methods to promote student engagement, collaboration, and mutual respect among all learners. It also addresses the role of mental well-being in learning, exploring trauma-informed and restorative practices, which are addressed in relation to online and hybrid learning environments. Through a blend of theoretical frameworks and practical applications including case studies, Creating Positive Learning Environments teaches learners how to develop and sustain environments that not only enhance academic performance but also support the holistic development of students.

*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 the role of the community of care in creating a learning environment that is sensitive to varied experiences and backgrounds.*
- *The learner applies classroom engagement strategies to enhance a positive classroom climate.*
- *The learner plans norms, routines, and classroom expectations to promote a safe, equitable, and productive learning environment.*

## **Planning Instructional Strategies for Meaningful Learning**

Planning Instructional Strategies for Meaningful Learning is a dynamic course designed for educators seeking to deepen their understanding of instructional planning and the execution of educational strategies that foster meaningful learning experiences. This course provides candidates with the knowledge and skills necessary to create engaging and standards-aligned lessons that meet the needs of all students. This course also covers a range of high-leverage instructional practices to increase student learning, engagement, and achievement. Participants will learn to utilize assessments to inform instruction, adapt teaching to accommodate all students, and incorporate technology to enhance learning.

*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 the application of instructional practices to facilitate mastery of standards and objectives for all students.*
- *The learner analyzes the role of formative and summative assessment in evaluating student learning and planning future instruction.*
- *The learner applies differentiated instructional strategies to address the needs of all students.*
- *The learner plans standards-based instruction.*

## **Assessing and Monitoring Student Learning**

Assessing and Monitoring Student Learning is a targeted course crafted for candidates who aim to enhance their skills in evaluating student progress and educational outcomes. This course provides an in-depth exploration of various assessment techniques, including formative and summative assessments, standardized tests, benchmark assessments, progress monitoring, and alternative assessment strategies. Participants will learn how to design effective assessment tools, interpret data to inform instruction, and provide meaningful feedback to students. This course also provides a foundation of data analysis that supports educators' need to understand data and present data to stakeholders. Candidates will also explore online and digital assessment tools. Assessing and Monitoring Student Learning will prepare learners to align assessments to standards to monitor student learning, assess data, and provide on time and quality feedback.

*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 aligns standards, objectives, and assessments within their instructional practices.*
- *The learner analyzes assessment results to determine student learning and inform instructional decisions for a classroom.*
- *The learner applies various assessment types to monitor progress and actively engage students in their own learning.*
- *The learner provides appropriate feedback to increase student learning.*

## **Instructional Technology and Online Pedagogy**

Instructional Technology and Online Pedagogy is an innovative course designed to equip students with the skills to effectively integrate technology in their teaching practices. The course also covers best practices for online pedagogy, assessment and feedback, collaborative learning, and the use of multimedia and interactive elements to enhance learning experiences. With a focus on practical application, students will leave the course ready to create and facilitate compelling, high-quality online learning experiences that meet the needs of today's diverse learners. This course also provides a foundation for supporting digital literacy in K–12 education. In addition, this course prepares students to use technology to improve professional productivity and effectiveness in areas like data analysis and data representations.

*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 applies instructional technologies to facilitate mastery of standards and objectives for all learners.*
- *The learner applies online pedagogy to facilitate student learning experiences.*
- *The learner implements technology solutions to support teacher productivity.*
- *The learner plans instruction focused on building students' digital literacy skills.*

## **General Education**

### **Composition: Writing with a Strategy**

Welcome to Composition: Writing with a Strategy! In this course, you will focus on three main topics: understanding purpose, context, and audience, writing strategies and techniques, and editing and revising. In addition, the first section, will offer review on core elements of the writing process, cross-cultural communication, as well as working with words and common standards and practices. Each section includes learning opportunities through readings, videos, audio, and other relevant resources. Assessment activities with feedback also provide opportunities to check your learning, practice, and show how well you understand course content. Because the course is self-paced, you may move through the material as quickly or as slowly as you need to gain proficiency in the seven competencies that will be covered in the final assessment. If you have no prior knowledge or experience, you can expect to spend 30-40 hours on the course content.

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner composes constructive feedback of written texts.*
- *The learner constructs a written document with correct format, style, structure, and grammar.*
- *The learner formulates a strategy for editing and revising written text.*
- *The learner incorporates writing strategies and techniques for written communication.*
- *The learner writes with purpose for a given context and target audience.*

### **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.*

## **Composition: Successful Self-Expression**

Welcome to Composition: Successful Self-Expression! In this course, you will focus on four main topics: professional writing for a cross-cultural audience, narrowing research topics and questions, researching for content to support a topic, and referencing research sources. 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. You will demonstrate competency through a performance assessment. There is no prerequisite for this course and there is no specific technical knowledge needed.

*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 composes a written message with language appropriate for cross-cultural communication.*
- *The learner incorporates research to support a position or idea.*
- *The learner incorporates self-expression in written communication.*
- *The learner researches valid and reliable sources.*
- *The learner writes a message using an effective communication approach for a given situation.*
- *The learner writes a reference list.*
- *The learner writes in a professional manner for a given scenario.*

## **Quantitative Literacy**

Quantitative Literacy views real-world problems through the lens of quantitative reasoning. The application of quantitative concepts to topics such as financial decisions is explored. Algebraic models and functions, as well as principles of geometry, are reviewed as fundamental ways to explore real-life scenarios. The use of mathematical concepts as a tool for modeling and understanding everyday problems is leveraged to promote students' thinking of math as a useful and relevant tool for many situations and scenarios. Numeracy and quantitative thinking skills are developed through these applications.

*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 applies algebraic models and functions to real-world scenarios.*
- *The learner applies geometric concepts and calculations to solve practical problems.*
- *The learner applies quantitative methods to make financial decisions.*

## **Introduction to Systems Thinking and Applications**

Introduction to Systems Thinking and Applications provides learners with the skills required to engage in a holistic systems-based approach to analyzing complex problems and solutions. This course introduces the foundational concepts and principles of systems thinking and provides opportunities to use a systems thinking approach to analyze and evaluate real-world case studies. The course will culminate with using systems thinking to develop a solution to an authentic complex problem. This course has no prerequisites, but general education math (C955 or C957) is preferred. Because the course is self-paced, learners may move through the material as quickly or as slowly as needed, with the goal of demonstrating proficiency in the five competencies covered in the final assessment. If learners have no prior knowledge of this material, they can expect to spend 30 to 40 hours on the course content.

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner analyzes complex problems and solutions using a systems thinking methodology.*
- *The learner applies the basic principles and foundational theory of systems thinking to a scenario.*
- *The learner designs a solution to a complex problem using systems thinking.*

## **Technology and Ethics: Emerging Trends and Society**

Technology and Ethics: Emerging Trends and Society explores the intersection of ethical thinking and technological innovations. A foundational introduction to ethical frameworks is applied to emerging trends in technology, including artificial intelligence, social media, and other forms of digital media. This course examines the impact of technology on our understanding of self, as well as the individual's role in interacting with others in a globalized society. The course helps students gain the ability to recognize ethical actions within the context of current and newly evolving technological landscapes. 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 learner analyzes privacy ethics and identity as related to emerging technologies.*
- *The learner applies ethical concepts to emerging technology as it relates to society.*
- *The learner describes ethical decision-making frameworks as applied to technology.*

## **American Politics and the US Constitution**

American Politics and the U.S. Constitution examines the evolution of representative government in the United States and the changing interpretations of the civil rights and civil liberties protected by the Constitution. This course will give candidates an understanding of the powers of the branches of the federal government, the continual tensions inherent in a federal system, the shifting relationship between state and federal governments, and the interactions between elected officials and the ever-changing electorate. This course will focus on such topics as the role of a free press in a democracy, the impact of changing demographics on American politics, and the debates over and expansion of civil rights. Upon completion of the course, candidates should be able to explain the basic functions of the federal government, describe the forces that shape American policy and politics, and be better prepared to participate in America's civic institutions. This course has no prerequisite.

*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 the influence of competing political ideologies on the development of the United States government.*
- *The graduate examines the influence of political parties, citizens, and non-governmental organizations on elections and other political processes inside a participatory democracy.*
- *The graduate examines the influence of the media, public opinion, and political discourse on American democracy.*
- *The graduate examines the struggle to balance individual liberty, public order, and state's rights.*
- *The graduate explains how the structure and powers of the United States government interact to form public policy.*

## **General Science Content**

### **General Earth Science I**

This comprehensive survey course provides a foundational understanding of Earth's position in the universe and its dynamic systems. Students will explore Earth's placement within the solar system, including the effects of its orbit, origin, and celestial interactions on tides and seasons. The course delves into Earth's subsystems—geosphere, hydrosphere, biosphere, and atmosphere—focusing on their interactions and impacts on weather, climate, and geological processes like weathering, erosion, and soil formation. Additionally, the course examines natural phenomena such as earthquakes and volcanoes, and the significant influence of human activities on Earth's systems, addressing topics such as resource management, land use, pollution, and sustainability. Through interactive simulations, multimedia resources, and real-life applications, students will engage in interdisciplinary thinking and develop a deep appreciation for the scientific methods, theories, and laws that

underpin Earth science.

*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 how systems and system interactions on Earth create conditions in the biosphere, hydrosphere, atmosphere, and geosphere.*
- *The learner interprets data related to the impact of human activity on the Earth and the impact of the Earth on human activity.*
- *The learner relates patterns and processes on Earth to its position in the solar system and universe.*

## **General Earth Science I Lab**

The Earth Science I Lab course equips students with skills to conduct scientific investigations in Earth science. Students will apply the scientific method, design controlled experiments, and follow lab safety protocols. They will gain experience with data collection methods, including field observations, experiments, and virtual simulations of phenomena like erosion. The course emphasizes analyzing weather, climate, and seismic data using basic techniques. It also covers essential aspects of identifying and analyzing the components of a lab report by answering questions related to a simulated lab report. Students will learn to interpret data, draw conclusions, and communicate findings effectively, preparing them for advanced Earth science studies and research.

*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 conducts scientific investigations to answer questions using experimentation in the field of earth science.*

## **General Biology I**

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 different types of cells based on their structures and biological functions.*
- *The graduate analyzes inter-dependencies of organisms and their environments.*
- *The graduate analyzes the basic chemical composition of cells and the basic processes that happen at the cellular level.*
- *The graduate analyzes the biological basis for and patterns of heredity and gene expression.*
- *The graduate analyzes the characteristics and classifications of living organisms.*

## **General Biology I Lab**

This course focuses on developing foundational skills in scientific investigation within the field of biology. It emphasizes the application of the scientific method to answer biological questions through hypothesis-driven experimentation. Students will learn to design, execute, and analyze biological experiments, ensuring adherence to rigorous scientific protocols and ethical standards. The course also covers essential aspects of identifying and analyzing the components of a lab report by answering questions related to a simulated lab report. Throughout the course, students will cultivate critical thinking skills necessary for interpreting data, drawing conclusions, and proposing further research directions in biology.

*This course covers the following competencies:*

- *Discusses course planning tool report. Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together*
- *The learner conducts scientific investigations to answer questions using experimentation in the field of biology.*

## General Chemistry I

General Chemistry I introduces foundational principles of chemistry, starting at the atomic level and expanding to the behavior of elements within the periodic table. This course explores how atoms bond to form molecules and proceeds into chemical reactions, acids and bases, solutions, and nuclear reactions. Students will gain a comprehensive understanding of stability and change in chemical processes. This course highlights the practical aspects of chemistry, providing insights into how chemical principles underpin everyday phenomena and contribute to our understanding of environmental processes.

*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 applies concepts of energy and entropy to describe systems.*
- *The learner describes processes and outputs of nuclear reactions.*
- *The learner recognizes patterns in the structure and properties of matter based on atomic structure.*

## General Chemistry I Lab

General Chemistry I Lab focuses on developing foundational skills in scientific investigation in chemistry. It emphasizes the application of the scientific method to answer chemistry questions through hypothesis-driven experimentation. Students will learn to design, execute, and analyze chemistry experiments, ensuring adherence to rigorous scientific protocols and ethical standards. The course also covers essential aspects of scientific communication, including writing clear and structured scientific reports and effectively presenting experimental findings. Throughout the course, students will cultivate critical thinking skills necessary for interpreting data and drawing conclusions.

*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 conducts scientific investigations to answer questions using experimentation in the field of chemistry.*

## General Physics I

This General Physics course covers fundamental concepts, including Newton's Laws, forces, motion, energy, waves, electricity, and magnetism, with real-world applications and insights into relativity and quantum theory. Learners will study measurement, forces and motion, Newton's Laws, centrifugal and centripetal forces, friction, gravity, momentum, collisions, vectors, wave motion, energy, thermodynamics, and electromagnetic waves. Skills developed include scientific literacy, physical science application, systems thinking, and scientific reasoning.

*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 applies concepts of energy and entropy to describe systems.*
- *The learner applies concepts of physics to describe forces, motion, and momentum.*
- *The learner describes electricity, magnetism, and their relationship.*

## General Physics I Lab

In this lab that follows the General Physics course, learners will develop the ability to conduct scientific investigations to answer questions using experimentation in the field of physics. The section emphasizes the application of the scientific method to solve problems, analyze data from experiments, and draw conclusions. Students will also learn to accurately summarize their findings and perform tasks with attention to detail. Throughout the lessons, students will engage in activities designed to enhance their scientific reasoning and written communication skills, ensuring they can effectively explain their results. They will practice identifying interconnections within systems. The course provides a foundational understanding of experimental techniques and data analysis, preparing learners to conduct independent investigations and apply their knowledge in real-world contexts.

*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 conducts scientific investigations to answer questions using experimentation in the field of physics.*

## **Mathematics Education**

### **Probability and Statistics**

Probability and Statistics offers candidates a comprehensive introduction to the fundamental principles of probability theory and statistical analysis, specifically designed for educators and aspiring statisticians. Beginning with the basics, students will explore essential concepts such as probability rules, conditional probability, and counting techniques, learning how to apply these in real-world contexts and effectively communicate them to K-12 students. Students will then learn sampling methods and estimation techniques, equipping them with the knowledge to gather, analyze, and interpret representative data for statistical analysis. Finally, students will focus on hypothesis testing and statistical inference, where they will learn to conduct and interpret various tests, including confidence intervals, using statistical software. Through a blend of interactive simulations, scenario-based challenges, and reflective activities, this course prepares students to apply these statistical tools in educational settings and beyond, fostering data-driven decision-making and effective teaching practices.

*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 applies basic probability theory to solve problems involving random events.*
- *The learner conducts sampling and estimation for statistical analysis.*
- *The learner performs hypothesis testing and statistical analysis to make data-driven decisions.*

## **Secondary Education**

### **General Secondary Methods**

General Secondary Methods prepares students for secondary teaching by equipping them with essential instructional skills and knowledge tailored to adolescent learners. Students will explore how adolescent development influences learning, how secondary school settings influence instructional choices, and how to implement effective teaching strategies in these environments. Through a blend of theory and practical application, students will create and assess lesson plans, focusing on differentiated instruction, formative and summative assessments, and the integration of technology, including AI tools, to promote affective learning in diverse secondary education settings.

*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 instruction that considers features of secondary learners and characteristics of secondary education to promote impactful learning.*
- *The learner relates characteristics of secondary education settings to instructional and pedagogical choices.*
- *The learner relates key characteristics of adolescents to their implications for learning.*

### **Laboratory Safety**

The course "Laboratory Safety" aims at equipping learners with essential safety knowledge and skills for various learning environments, including laboratories, classrooms, and field settings. Learners in this course will deeply understand safety protocols, legal responsibilities, and effective teaching strategies for safety in educational settings.

*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 demonstrates knowledge of laboratory safety, potential hazards and educator responsibilities to ensure a safe learning environment.*
- *The learner leverages technology to plan virtual laboratory experiences.*

### **Secondary Disciplinary Literacy**

Secondary Disciplinary Literacy is a cutting-edge course designed for candidates seeking to enhance their literacy skills within specific secondary academic disciplines. The course examines the distinct literacy needs of various secondary content areas, focusing on how reading, writing, speaking, and listening function differently in each discipline. Candidates will explore specialized language structures and text features relevant to each field and develop strategies to help students



master these complexities. The curriculum integrates the science of reading to support critical engagement with and production of disciplinary texts, while also incorporating technology and digital literacy to aid students in accessing and interpreting discipline-specific information. The course combines research-based evidence with practical, structured literacy activities to equip educators with the skills necessary to improve student achievement and understanding across all subjects. This course is a required component in SCED programs and will be assessed through a performance assessment task for both undergraduate and graduate versions. This methods course will count towards 10 hours of the 51 total clinical hours that learners will gain from their SCED methods courses.

*This course covers the following competencies:*

- *The learner assesses the use of literacy strategies for a discipline.*
- *The learner designs learning activities that incorporate literacy to increase learning for a discipline.*
- *The learner plans authentic writing activities to develop an understanding of discipline-specific content.*

## **Science Education**

### **Three Dimensional Science and Engineering**

Three Dimensional Science and Engineering focuses on developing a comprehensive understanding of science and engineering pedagogical knowledge. This course is the first of three science teaching methods courses and provides a robust foundation in integrating disciplinary core ideas, crosscutting concepts, and science and engineering practices in phenomena-based curriculum and instruction. Candidates will delve into planning learning experiences, designing instructional strategies, and utilizing phenomena-based teaching to promote engagement and understanding. Reflective practices, such as evaluating observed teaching, analyzing personal teaching methods, and reviewing course content, are emphasized to foster continuous improvement. The course will be assessed via an integrated performance assessment task, requiring candidates to demonstrate their instructional 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 designs learning experiences that target student development of science and engineering practices and crosscutting concepts.*
- *The learner plans learning experiences that integrate core ideas in engineering, technology, and science.*
- *The learner uses phenomena-based teaching pedagogy to promote engagement in science learning.*

## **Biology Content**

### **General Biology II**

This General Biology II course is designed to prepare learners for teaching biology at the high school level by providing an in-depth understanding of cellular structures, the processes of mitosis and meiosis, and the mechanisms of communication and information processing within organisms. Students will explore the complexities of cell differentiation, the roles of different brain regions, and how organisms respond to environmental stimuli through interactive activities and simulations. The course emphasizes the integration of foundational concepts with real-world applications, helping future educators build a comprehensive knowledge base. By the end of the course, students will be well-equipped to teach key biological processes and understand their significance in the growth, development, and survival of living organisms.

*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 cellular structures and their functions.*
- *The learner describes how organisms of diverse complexity process information and communicate in response to their environment.*
- *The learner describes how the processes of mitosis and meiosis relate to the growth and development of organisms.*

### **Molecular Biology**

Molecular Biology is designed to deepen the understanding of the intricate processes that govern life at the molecular level. This course explores the structure and function of key molecules involved in DNA replication, transcription, translation, and gene regulation. It delves into the mechanisms of cellular transport, differentiation, and regulation, examining how cells maintain their internal environment and respond to external signals. The biochemical pathways essential for metabolism and

energy flow, including glycolysis, the citric acid cycle, and oxidative phosphorylation, are thoroughly covered. This course equips educators with the knowledge and skills to effectively teach molecular biology concepts in the classroom, emphasizing evidence-based applications and critical thinking.

*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 molecular structures and processes of cellular transport, differentiation, regulation, and communication.*
- *The learner analyzes the molecular structures and processes of biochemical pathways and their roles in metabolism and energy flow within an organism.*
- *The learner analyzes the structure and function of the molecules and processes involved in DNA replication, transcription, translation, and gene regulation.*

## **General Ecology**

General Ecology offers an in-depth exploration of how ecosystems function and interact. Candidates will study both biotic and abiotic factors that play crucial roles in sustaining ecological balance. Key topics include the flow of energy through food chains and webs, nutrient cycling, and the dynamics of populations—covering growth models, carrying capacity, and factors influencing population size and structure. The course examines species interactions such as competition, predation, and symbiosis, and explores community structure and biodiversity. Candidates will learn about primary and secondary succession and how these processes shape ecosystems over time. Additionally, the course addresses conservation principles and practices, with a focus on analyzing human impacts on ecosystems and exploring strategies for sustainability. Through this course, candidates will gain a comprehensive understanding of the intricate web of life that sustains our planet.

*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 changes to ecosystems over time, including the underlying processes and long-term impacts on biodiversity and ecosystem health.*
- *The learner analyzes conservation of energy and matter as it cycles and flows through ecosystems.*
- *The learner analyzes population, biodiversity, and ecosystem dynamics and interactions.*

## **Cell Biology**

Cell Biology examines the fundamental principles and techniques that underpin the structure, function, and growth of cells, encompassing cellular components, the cell cycle, and genetic information flow. The course emphasizes the importance of cellular processes and techniques such as microscopy, cell culture, genetic engineering, and bioinformatics, highlighting their relevance in understanding cellular biology's role in health and disease. This course is designed to provide students with a comprehensive understanding of how cells maintain homeostasis, metabolize, and perform specialized functions.

*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 processes for cell growth, including the cell cycle and its regulation.*
- *The learner analyzes the structure and function of cellular components for cells to maintain homeostasis, metabolize, and perform specialized functions.*
- *The learner describes relevant techniques and technologies in cellular biology including their connection to emerging biotechnical applications.*

## **Genetics**

Genetics is an introductory course for undergraduate students seeking licensure or endorsement in secondary or middle grade science education. This course addresses the basic principles of heredity and the function of molecular genetics. Topics include Mendelian and non-Mendelian inheritance, gene regulation, and variation at the individual level. The course examines modern technologies and applications of genetics.

*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 applies principles of Mendelian and non-Mendelian genetics to predict genetic outcomes.*
- *The learner describes relevant genetic techniques and technologies and their connection to emerging biotechnical applications.*
- *The learner describes the molecular structures and processes of genetic inheritance and sources of genetic variation.*

## **Evolutionary Biology**

Evolutionary Biology provides a comprehensive exploration of key concepts and mechanisms of evolution. Students will learn about the evidence supporting evolution, including fossils and molecular data, the mechanisms driving evolutionary change like natural selection and genetic drift, and the historical and contemporary factors influencing the diversity of life. The course also addresses the importance of biodiversity conservation and equips educators with strategies to effectively teach evolutionary concepts in the classroom, emphasizing evidence-based applications and critical thinking.

*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 mechanisms that contribute to changes in species over time, the formation of new species, and the development of diversity of life on Earth.*
- *The learner applies principles of evolution to the history and diversity of life.*
- *The learner applies various lines of evidence for evolution to construct and support explanations for evolutionary processes and development of life over time.*

## **Advanced Zoology and Botany with Lab**

Advanced Zoology & Botany with Lab is an in-depth exploration of advanced topics in zoology and botany, including the study of animal and plant physiology, ecology, evolution, and taxonomy. This course will engage students in virtual, hands-on laboratory exercises to develop practical skills in virtual or hands-on lab activities, data collection, and analysis. This course builds on concepts from General Biology I and II, and Evolutionary Biology and contains instructional teaching strategies for classroom delivery.

*This course covers the following competencies:*

- *Analyzes Functions of Structures The learner analyzes the functions of structures in animals and plants.*
- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner analyzes characteristics and methods for categorizing and organizing the diversity of living organisms.*
- *The learner analyzes characteristics of the Animal Kingdom.*
- *The learner analyzes characteristics of the Plant Kingdom.*

## **Secondary Biology Curriculum**

The Secondary Biology course offers a comprehensive understanding of biological principles and processes, starting from the fundamental cellular structures and functions to the complexities of ecosystem dynamics. Students will delve into key topics such as genetics, evolution, and ecological interactions, gaining insights into the diversity of life and the interconnectedness of biological systems. The course emphasizes critical thinking and problem-solving skills, enabling learners to analyze biological phenomena and apply their knowledge to real-world challenges. Through a blend of theoretical knowledge and practical application, students will engage in hands-on activities, scenarios, and case studies to deepen their understanding. Additionally, the course highlights the impact of environmental changes on ecosystems, fostering an appreciation for conservation and sustainability. By the end of the course, learners will be well-prepared to address various biological challenges and pursue further studies or careers in the field of biology 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 learner describes cellular structures, functions, and processes.*
- *The learner describes genetic mechanisms and evolutionary processes and how they lead to the diversity of life.*
- *The learner describes the diversity of life, biological organization, and interdependence of organisms and systems.*

## **Pedagogy and Teaching Methods**

### **Secondary Literacy Methods and Interventions**

Secondary Literacy Methods & Interventions utilizes MTSS to equip educators with evidence-based strategies to address adolescents' reading challenges through the Multi-Tiered System of Supports Model. Candidates learn to identify, monitor, and provide differentiated instruction, integrating screening tools and progress monitoring to enhance comprehension. The course emphasizes the development of personalized intervention plans while utilizing reading assessments for informed instructional decisions. By completion, candidates compile intervention strategies supporting learners across MTSS tiers, fostering inclusive environments for academic success.

*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 applies science of reading research methods to literacy instruction to further academic success.*
- *The learner integrates evidence-based MTSS strategies and assessment tools to improve academic success in literacy.*

## **Science**

### **Secondary Science Teaching Methods**

This course focuses on equipping secondary science educators with the essential knowledge and skills to effectively teach science through a three-dimensional approach, integrating science and engineering practices, crosscutting concepts, and disciplinary core ideas. Participants will explore general considerations for science instruction, including inquiry-based learning, hands-on activities, and assessment strategies. By building on foundational knowledge in Three-Dimensional Science and Engineering, educators will enhance their ability to engage students in meaningful and authentic scientific learning experiences.

*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 designs a learning experience that incorporates instructional materials and strategies to support learners in constructing meaning from scientific experiences.*
- *The learner implements intentional instructional strategies to develop knowledge in a science discipline.*
- *The learner plans accessible and meaningful science instruction that aligns to standards and that reflects the dispositions of a science educator.*

## Accessibility and Accommodations

Western Governors University (WGU) is committed to providing equal access to its academic programs to all qualified students. WGU's Student Disability Services department supports this mission by providing support, resources, advocacy, collaboration, and academic accommodations in accordance with federal and state statutes and regulations to WGU students and prospective students. Prospective and Enrolled Students may initiate the accommodation process at any time during their enrollment at WGU. To initiate the accommodation process, all potential and current WGU students must complete the secure online Accommodation Request Form located at [https://www.wgu.edu/wgu/ada\\_form](https://www.wgu.edu/wgu/ada_form). The Student Disability Services team can be reached at 1-877- 435-7948 x5922 or at [sds@wgu.edu](mailto:sds@wgu.edu). Additional information on accommodations can be found in the student handbook Accommodations for Students with Disabilities policy.

## Need More Information? WGU Student Services

Student Support Services team members also assist with unresolved concerns to find equitable resolutions. To contact the Student Support Services team, please feel free to call 877-435-7948 or e-mail [studentservices@wgu.edu](mailto:studentservices@wgu.edu). We are available Monday through Friday from 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.

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