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# Program Guidebook

## Associate of Science, Health Science - Pre-Pharmacy

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*Associate of Science – Health Science - Pre Pharmacy Pathway is a competency-based undergraduate degree designed to prepare students for entry into Doctor of Pharmacy (PharmD) programs and other advanced study in the health sciences. The program provides a rigorous foundation in biological sciences, chemistry, quantitative reasoning, and professional communication essential for success in pharmacy education and practice. The curriculum integrates general education and foundational science coursework, including general biology, anatomy and physiology, microbiology, general and organic chemistry with laboratories, genetics, cellular biology, statistics, algebra, precalculus, and calculus. Students also complete coursework in healthcare ethics, psychology, communication, and composition to support professional readiness and ethical decision-making in healthcare environments.*

## 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 accreditation. All programmatic accreditations are managed by the Academic Engagement department. Contact 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. Your program mentor and course instructors will help you assess your strengths and development needs to establish a study plan.

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.

You will also be assigned to a course instructor for each course. Course instructors are doctoral-level subject matter experts who will assist your learning in each individual course. When you begin a new course, your assigned course instructor will actively monitor your progress and will be in touch to offer one-on-one instruction and to provide you with information about webinars, cohort sessions, and other learning opportunities available to help you acquire the competencies you need to master the course. Your course instructor can discuss your learning for the course, help you find answers to content questions, and give you the tools to navigate the course successfully. In addition, you will communicate with course instructors by posting in the online learning community and participating in live discussion sessions such as webinars and cohorts.

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 onthe 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.

## 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* Associate of Science, Health Science - Pre-Pharmacy

| Course Description | CUs | Term |
|---|---|---|
| Composition: Writing with a Strategy | 3 | 1 |
| Introduction to Communication: Connecting with Others | 3 | 1 |
| Applied Probability and Statistics | 3 | 1 |
| Healthcare Values and Ethics | 3 | 1 |
| General Biology I | 3 | 2 |
| General Biology I Lab | 1 | 2 |
| Introduction to Psychology | 3 | 2 |
| College Algebra | 4 | 2 |
| Anatomy and Physiology I with Lab | 4 | 2 |
| Anatomy and Physiology II with Lab | 4 | 3 |
| General Chemistry I | 3 | 3 |
| General Chemistry I Lab | 1 | 3 |
| Precalculus | 4 | 3 |
| Microbiology with Lab: A Fundamental Approach | 4 | 4 |
| General Biology II | 3 | 4 |
| General Biology II Lab | 1 | 4 |
| American Politics and the US Constitution | 3 | 4 |
| Calculus I | 4 | 4 |

| | | |
|---|---|---|
| General Chemistry II | 3 | 5 |
| General Chemistry II Lab | 1 | 5 |
| Genetics | 3 | 5 |
| Cellular Biology | 3 | 5 |
| Organic Chemistry I | 3 | 5 |
| Organic Chemistry I Lab | 1 | 6 |
| Organic Chemistry II | 3 | 6 |
| Organic Chemistry II Lab | 1 | 6 |
| Total CUs | 72 | |

## 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 Associate of Science, Health Science - Pre-Pharmacy

The following section includes the areas of study in the program, with their associated courses. Your specific learning resources and level of instructional support will vary based on the individual competencies you bring to the program and your confidence in developing the knowledge, skills, and abilities required in each area of the degree. The Degree Plan and learning resources are dynamic, so you need to review your Degree Plan and seek the advice of your mentor regarding the resources before you purchase them.

## General Education

### Composition: Writing with a Strategy

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

*This course covers the following 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.*

### 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 content covers simple probability calculations, based on events that occur in the business and IT industries. No prerequisites are required for this course.

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The graduate applies principles and methods of probability-based mathematics to explain and solve problems.*
- *The graduate applies the operations, processes, and procedures of basic algebra to evaluate quantitative expressions, and to solve equations and inequalities.*
- *The graduate applies the operations, processes, and procedures of fractions, decimals, and percentages to evaluate quantitative expressions.*
- *The graduate evaluates categorical and quantitative data pertaining to a single variable using appropriate graphical displays and numerical measures.*
- *The graduate evaluates the relationship between two quantitative variables through correlation and regression.*
- *The graduate evaluates the relationship between two variables through interpretation of visual displays and numerical measures.*

## Introduction to Psychology

In this course, students will develop an understanding of psychology and how it helps them better understand others and themselves. Students will learn general theories about psychological development, the structure of the brain, and how psychologists study behavior. They will gain an understanding of both normal and disordered psychological behaviors, as well as general applications of the science of psychology in society (such as personality typing and counseling).

*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 explains the biological perspectives of psychology.*
- *The learner explains the concepts of personality development and social psychology.*
- *The learner explains the foundations of psychology.*
- *The learner explains the theories of learning and memory.*
- *The learner identifies psychological disorders and treatment methods.*

## 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 combines functions, finds inverse functions, solves exponential and logarithmic equations and functions.*
- *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 solves systems of linear equations and their related applications.*

## Anatomy and Physiology I with Lab

This is Anatomy and Physiology I, a six-section, 4 CU course that enables students to develop an understanding of the relationships between the structures and function of the integumentary, skeletal, muscular, nervous and endocrine systems in the human body. This course will involve laboratory activities, simulated dissections, textbook material, models, and diagrams. 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 four competencies covered in the final assessment. If you have no prior knowledge of this material, you can expect to spend 40–60 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 the structures and physiological functions of the muscular system and the connections to complex systems in the human body.*
- *The learner analyzes the structures and physiological functions of the nervous system and sensory organs and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the endocrine system and its regulation of complex systems in the human body.*
- *The learner describes the structures and physiological functions of the integumentary system and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the skeletal system and the connections to complex systems in the human body.*
- *The learner describes the structural and basic functional organization of the human body and the terminology used to describe the orientation of bodily structures.*

## Anatomy and Physiology II with Lab

This is Anatomy and Physiology II, a six section, four CEU course that enables students to develop an understanding of the relationships between the structures and functions of the cardiovascular, respiratory, digestive, urinary, reproductive, and lymphatic systems in the human body. This course will involve laboratory activities, simulated dissections, textbook material, models, and diagrams. 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 four competencies covered in the final assessment. If you have no prior knowledge of this material, you can expect to spend 40–60 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 describes the structures and physiological functions of the cardiovascular system and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the digestive system and the connections to metabolism and complex systems in the human body.*
- *The learner describes the structures and physiological functions of the lymphatic system, immune response, and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the reproductive system and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the respiratory system and the connections to complex systems in the human body.*
- *The learner describes the structures and physiological functions of the urinary system and the connections to complex systems in the human body.*

## Precalculus

Precalculus builds on previous math courses to provide a deeper understanding of fundamental mathematical concepts and problem-solving skills to prepare students for calculus and professional success. The course will lead students to engage with functions, trigonometry, systems of equations, analytic geometry, and sequences and series. Through interactive learning experiences and real-world applications, precalculus will help students develop a deeper understanding of mathematical principles and their practical significance across diverse fields. Successful completion of a college level algebra course 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 learner applies a system of equations or inequalities to solve a problem.*
- *The learner applies analytic geometry to solve problems.*

- *The learner applies trigonometric concepts to simplify mathematical expressions.*
- *The learner evaluates different types of mathematical functions based on behavior and properties.*
- *The learner identifies patterns in sequences and series.*

### Microbiology with Lab: A Fundamental Approach

Microbiology with Lab: A Fundamental Approach explores the science that microorganisms are everywhere, and they have positive and negative effects on the community. The course examines the structure and function of microorganisms, disease transmission and progression, and immune responses and other interventions, and it identifies key global diseases. The course consists of an introduction and four major sections. Each section includes learning opportunities through readings, videos, and other relevant resources. Assessment activities with feedback also provide opportunities for students to check their learning, practice, and show how well they understand course content. To assist students in developing an applied, evidence-based understanding of microbiology, this course integrates several lab experiments to help determine the specific characteristic of an unknown microbial sample and a treatment plan. Because the course is self-paced, students may move through the material as quickly or as slowly as needed to gain proficiency in the four competencies that will be covered in the final assessment. Students who have no prior knowledge of or experience with this topic can expect to spend 48–60 hours on the course content. There are no prerequisites for this course.

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner analyzes disease characteristics to inform individuals about etiologies and treatments.*
- *The learner analyzes methods to prevent and treat infectious diseases and influence positive community outcomes.*
- *The learner analyzes microbial transmission and progression and the care needed based on symptoms and environment.*
- *The learner analyzes structures and characteristics of microorganisms that inform etiologies of symptoms and diseases.*

### 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.*

## Healthcare Management

### Healthcare Values and Ethics

Healthcare Values and Ethics requires students to synthesize an interdisciplinary approach to decision-making as it applies to health and human services. This course explores the contemporary issues facing health professionals, which include ethics, regulations and compliance, and handling protected healthcare information. In this course, learners will develop their ability to make ethical decisions in collaborative care environments and working within a team. There are no prerequisites for this course.

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner applies ethical decision-making strategies to support a compliant and safe work environment.*
- *The learner applies ethical principles when making decisions in a collaborative care environment.*
- *The learner identifies Health Information Portability and Accountability Act (HIPAA) compliant actions regarding Protected Health Information (PHI).*

# General Science Content

## 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:*

- *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.*

# Biology Content

## General Biology II

General Biology II builds on foundational molecular, cellular, genetic, evolutionary, and ecological principles established in General Biology I. This course emphasizes systems-level biological thinking, focusing on how biological systems integrate structure and function to maintain homeostasis, regulate internal processes, manage energy and matter, and reproduce and adapt across time and scale...
levels. The course prioritizes evidence-based explanation of system behavior rather than memorization of isolated structures.

*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 biological evidence related to reproduction, development, and genetic variation to explain life cycle patterns and population-level adaptation.*
- *The learner analyzes how cells and integrated organ systems maintain homeostasis through regulatory and feedback mechanisms across molecular, cellular, and organismal levels.*
- *The learner analyzes how energy and matter are acquired, transformed, and cycled within and across biological systems in response to internal and external environmental conditions.*

## General Biology II Lab

General Biology II Lab builds on the experimental foundations established in General Biology I Lab by emphasizing systems-level analysis, interpretation of biological data, and evidence-based reasoning...
laboratory procedures or technical instrumentation, this lab strengthens learners' ability to analyze and evaluate biological investigations related to:..
exchange systems..

*This course covers the following competencies:*

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner analyzes experimental evidence from biological investigations to evaluate system behavior and communicates evidence-based conclusions using accepted scientific conventions.*

## Genetics

Genetics examines the molecular mechanisms of inheritance, gene regulation, and genetic variation across biological systems. The course emphasizes foundational molecular genetics, inheritance patterns, quantitative genetic prediction, and modern genetic technologies...
and biotechnological contexts. The course integrates conceptual understanding with analytical reasoning to support STEM readiness.

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

### Cellular Biology

This course examines the structure, function, and regulation of cellular systems, emphasizing how cells maintain homeostasis, metabolize energy, grow, divide, and respond to environmental stimuli. Learners analyze cellular components, genetic information flow, cell cycle regulation, and foundational cellular biology techniques...

biology, systems thinking, and applied biotechnology concepts to support STEM readiness.

*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.*

## Mathematics Content

### Calculus I

Calculus I introduces the fundamental ideas of limits, derivatives, anti-derivatives, and basic differential equations as tools for modeling and solving real-world problems. Students explore how functions behave, how rates of change are measured and optimized, and how derivatives lead to applications in linear approximations and optimization. The basics of how accumulated quantities (antiderivatives) are computed using the Fundamental Theorem of Calculus are also introduced...

from science, engineering, economics, and technology. Students will focus on conceptual understanding, graphical interpretation, and applied problem-solving rather than formal proofs. By the end of the course, students will be able to analyze change, model systems, and apply calculus techniques to practical scenarios.

*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 limits and continuity of functions to solve problems.*
- *The learner applies rules of differentiation to solve problems involving rates of change, linear approximation, and optimization.*
- *The learner evaluates definite and indefinite integrals using geometry and the Fundamental Theorem of Calculus.*
- *The learner solves separable differential equations and initial value problems.*

## Chemistry Content

### General Chemistry II

General Chemistry II builds on foundational principles introduced in General Chemistry I. The course emphasizes energy transfer, molecular structure and representation, and quantitative relationships governing chemical systems. Learners apply thermodynamic principles, molecular conventions, and quantitative reasoning to analyze physical and chemical processes across a range of contexts...

expected to interpret models, perform calculations, and analyze system behavior using established chemical laws and principles...

*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 qualitative and quantitative relationships based on predictions of chemical processes.*
- *The learner analyzes the transfer of energy and electron behavior during physical and chemical processes.*
- *The learner interprets the names of compounds, chemical formulas, depictions of molecular structures, and properties of compounds using the periodic table.*

### General Chemistry II Lab

General Chemistry II Lab provides applied experience analyzing chemical processes using structured scientific investigation

within a virtual laboratory environment. Learners design, execute, and interpret a multi-part chemical investigation that integrates quantitative reasoning, thermodynamic principles, and chemical system analysis...
emphasizes:..
results..
appears under the competency notes...
than independent research design.

*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 chemical processes in real-world contexts safely using scientific investigation techniques.*

## Organic Chemistry I

Organic Chemistry I introduces foundational principles governing the structure, properties, and reactivity of organic molecules. The course develops analytical reasoning skills by emphasizing structure–reactivity relationships, acid–base behavior, stereochemistry, and introductory mechanistic logic. ..
geometry, and intermolecular interactions influence chemical behavior. The course extends foundational general chemistry principles (polarity, equilibrium, acid–base theory) within explicitly organic contexts and develops mechanistic reasoning using curved-arrow formalism. ..
memorization of reaction catalogs.

*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 how functional groups and structural factors influence equilibria and reactivity, including acidity of organic molecules.*
- *The learner analyzes the 3-dimensional structure of organic molecules using nomenclature and visual representations to explain intermolecular interactions and physical and chemical behavior of organic molecules.*
- *The learner applies mechanistic principles and electron flow to predict and justify outcomes of substitution and elimination reactions, including interpretation of reaction coordinate diagrams.*

## Organic Chemistry I Lab

Organic Chemistry I Laboratory reinforces foundational organic chemistry principles through applied laboratory investigation. The course emphasizes safe laboratory practice, execution of foundational organic techniques, analysis of experimental results, and scientific documentation within introductory organic contexts...
laboratory techniques, including purification, separation, and compound characterization, while reinforcing chemical safety and scientific reasoning...
than advanced instrumentation or research-level design.

*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 standard organic chemistry laboratory techniques to safely conduct experiments, analyze experimental results, and document findings using accepted scientific conventions.*

## Organic Chemistry II

Organic Chemistry II builds upon foundational principles established in Organic Chemistry I to examine advanced organic reactions, functional group transformations, introductory synthesis planning, and spectroscopic structure determination...
course emphasizes mechanistic reasoning, structure-reactivity relationships, and analytical interpretation of chemical data. Reaction families are sequenced to support conceptual scaffolding and transferability across functional group systems. Foundational concepts such as oxidation-reduction are reviewed within explicitly organic contexts...
pathways, evaluate transformation strategies, and interpret spectroscopic information to justify structural 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 evaluates reaction mechanisms with appropriate reaction sequences to explain functional group transformations in organic systems.*
- *The learner interprets spectroscopic data to determine and justify the structure of simple organic molecules.*

## Organic Chemistry II Lab

Organic Chemistry II Laboratory emphasizes applied organic synthesis, purification, and analytical characterization. The course integrates experimental techniques with analytical reasoning and spectroscopic interpretation to reinforce lecture-based concepts...

analyze resulting products using purification and spectroscopic methods. Emphasis is placed on procedural accuracy, safe laboratory practice, analytical interpretation, troubleshooting, and scientific documentation...

beyond foundational technique execution by integrating synthesis with structural verification while maintaining introductory scope.

*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 combines organic synthesis, purification, and analytical techniques to safely produce and characterize organic compounds using accepted laboratory standards and structured scientific reporting practices.*

## 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. Potential and current students needing to request accommodation(s) are encouraged to contact Student Disability Services to initiate the request. 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*. Potential and current students can reach the Student Disability Services team Monday through Friday 8:00 a.m. to 5:00 p.m. MT at 1-877- 435-7948 x5922 or at *sds@wgu.edu*. Additional information on accommodations can be found in the student handbook Accommodations for Students with Disabilities po..

## 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*. 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.