Program Guidebook

Bachelor of Science, Cloud Computing - Microsoft Azure track

The Bachelor of Science in Cloud Computing - Azure track (BSCCAZR) degree program prepares IT professionals with hands-on knowledge and practical application of cloud computing infrastructure, platform,

Understanding the Competency-Based Approach

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 subject matter

The WGU orientation course focuses on acquainting you with WGU's competency-based model, distance education, technology, and other resources and tools available for students. You will also utilize WGU program and course communities, participate in activities, and get to know other students at WGU. The o utilize W

academic standing, you must complete at least 66.67% of the units you attempt over the length of your program—including any courses you add to your term to accelerate your progress. Additionally, during your first term at WGU you must pass at least 3 competency units in order to remain eligible for financial aid. We know that SAP is complex, so please contact a financial aid counselor should you have additional questions. *Please note: The Endorsement Preparation Program in Educational Leadership is not eligible for federal financial aid.

Courses

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

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.

Student Handbook article: Can I use my mobile device for learning resources?

Standard Path *for*

Course Description	CUs	Term
Technical Communication	3	10
Cloud Computing Capstone	4	10

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 Science, Cloud Computing - Microsoft Azure track

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.

IT Fundamentals

Introduction to IT

Introduction to IT examines information technology as a discipline and the various roles and functions of the IT department as business support. Students are presented with various IT disciplines, including systems and services, network and security, scripting and programming, data management, and business of IT, with a survey of technologies in every area and how they relate to each other and to the business.

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 different computer hardware and networking technologies and their developments.*
- *The learner describes fundamental data management functions in databases.*
- *The learner identifies components of software and its relation to operating systems.*
- *The learner identifies computer hardware components.*
- *The learner describes the structure, function, and security associated with networks.*
- *The learner describes the basics of programming languages in software development.*
- *The learner describes the role of the IT department in IT infrastructure management, disaster recovery, and business continuity processes.*
- *The learner evaluates ethical concerns in information technology.*

IT Applications

IT Applications introduces skills in identifying operating systems and their configurations and in implementing security principles across devices and networks. Learners will also gain skills in troubleshooting software, security, and malware issues, and in implementing basic operational procedures in documentation, change management, compliance, and communication. The course will introduce basic disaster recovery and business continuity procedures, scripting basics, and remote access technology solutions. The course prepares learners for the CompTIA A+ Core 2 certification exam.

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 identifies operating systems and their configurations.*
- *The learner implements security principles across devices and networks.*
- *The learner troubleshoots software, security, and malware issues.*
- *The learner implements basic operational procedures in documentation, change management, compliance, and communication.*
- *The learner implements basic disaster recovery and business continuity procedures.*
- *The learner identifies scripting basics.*
- *The learner identifies remote access technology solutions.*

IT Foundations

IT Foundations provides learners with an understanding of personal computer components and their functions in a desktop

system; a knowledge of computer data storage and retrieval; and skills in classifying, installing, configuring, optimizing, upgrading, and troubleshooting printers, laptops, portable devices, operating systems, networks, and system security. This course also gives learners the ability to recommend appropriate tools, diagnostic procedures, preventative maintenance, and troubleshooting techniques for personal computer components in a desktop system; strategies for identifying, preventing, and reporting safety hazards and environmental or human accidents in technological environments; and effective communication skills for interacting with colleagues and clients, including job-related professional behavior. The course prepares learners for the CompTIA A+ Core 1 certification exam.

- *The learner applies the basic principles and foundational theory of systems thinking to a scenario.*
- *The learner analyzes complex problems and solutions using a systems thinking methodology.*
- *The learner designs a solution to a complex problem using systems thinking.*

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- *The learner examines applications of key chemistry concepts including the structure of matter and the behavior and conservation of matter in chemical reactions.*
- *The learner describes the underlying organization, interactions, and processes within the Earth system including the Earth's structure and atmosphere, and Earth's interactions within the solar system.*

Applied Algebra

Applied Algebra is designed to help you develop competence in working with functions, the algebra of functions, and using some applied properties of functions. You will start learning about how we can apply different kinds of functions to relevant, real-life examples. From there, the algebra of several families of functions will be explored, including linear, polynomial, exponential, and logistic functions. You will also learn about relevant, applicable mathematical properties of each family of functions, including rate of change, concavity, maximizing/minimizing, and asymptotes. These properties will be used to solve problems related to your major and make sense of everyday living problems. Students should complete Applied Probability and Statistics or its equivalent prior to engaging in Applied Algebra.

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 interprets the real-world meaning of various functions based on notation, graphical representations, and data representations.*
- *The learner applies linear functions and their properties to real-world problems.*
- *The learner applies polynomial functions and their properties to real-world problems.*
- *The learner applies exponential functions and their properties to real-world problems.*
- *The learner applies logistic functions and their properties to real-world problems.*
- *The learner analyzes graphical depictions of real-world situations using functional properties.*
- *The learner verifies the validity of a given model.*

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

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The learner implements ethical decision-making frameworks in the information age.*
- *The learner describes ethical issues regarding data privacy, accuracy, access, and security.*
- *The learner explains professional ethical codes and their role in guiding professional behavior.*
- *The learner identifies interventions for personal bias and related legal concerns.*

Technical Communication

Cloud Applications

Cloud Applications prepares learners for the CompTIA Cloud+ certification exam. Learners will gain skills in designing cloud infrastructure and services and in recommending cloud security solutions, policies, and procedures. The course will also introduce skills in deploying cloud solutions for storage, networking, and security, and in managing cloud operations with processes, procedures, and improvements. Learners will also gain skills in troubleshooting cloud services issues in networking, security, and performance.

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 cloud infrastructure and services.*
- *The learner recommends cloud security solutions, policies, and procedures.*
- *The learner deploys cloud solutions for storage, networking, and security.*
- *The learner manages cloud operations with processes, procedures, and improvements.*
- *The learner troubleshoots cloud services issues in networking, security, and performance.*

Cloud and Virtualization

Azure Fundamentals

Azure Fundamentals provides the learner with skills needed to describe the following concepts: cloud concepts; core Azure services; core solutions and management tools on Azure; general security and network security features; identity,

- *The learner explains how to implement virtual networking services and machine image monitoring.*

Azure Data Engineer

Azure Data Engineer prepares the learner for integrating, transforming, and consolidating data from various structured and unstructured data systems into structures that are suitable for building analytics solutions. Learners will be provided with skills to accomplish the following technical tasks: design and implement data storage, design and develop data processing, design and implement data security, and monitor and optimize data storage and data processing. Candidates must have solid knowledge of data processing languages, such as SQL, Python, or Scala, and they need to understand parallel processing and data architecture patterns. The following courses are prerequisites: Introduction to Programming in Python, Azure Fundamentals, and Azure Developer Associate.

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 configures environments for database instances with optimized storage and data query abilities in Azure.*
- *The learner orchestrates data ingestion, movement, and transformation using Apache Spark and Databricks.*
- *The learner architects the end-to-end data security and supporting infrastructures.*
- *The learner optimizes performance, data storage, and data processing.*

Azure Developer Associate

Azure Developer Associate provides the learner with subject matter knowledge in designing, building, testing, and maintaining cloud applications and services on Microsoft Azure. Learners will be provided with the ability to program in a language supported by Azure and proficiency in Azure SDKs, Azure PowerShell, Azure CLI, data storage options, data connections, APIs, app authentication and authorization, compute and container deployment, debugging, performance tuning, and monitoring. The following course is a prerequisite: Azure Fundamentals.

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 Azure infrastructure, platform, and software as a service (SaaS) solutions that address the information technology needs of an organization.*
- *The learner determines requirements for storage of data assets using Microsoft Azure Cosmos DB and Redis Cache.*
- *The learner implements secure user and group authentication and authorization with Microsoft Azure Active Directory,*

Linux Foundations prepares learners for the LPI Linux Essentials certification, and is an introduction to Linux as an operating system as well as an introduction to open-source concepts and the basics of the Linux command line. Learners will gain skills in identifying the fundamentals of open-source software and to develop resources for data access and security.

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 identifies the fundamentals of open-source software.*
- *The learner develops resources for data access and security.*

General Science Content

Introduction to Biology

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

This course covers the following competencies:

- *Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.*
- *The graduate analyzes the characteristics and classifications of living organisms.*
- *The graduate analyzes the basic chemical composition of cells and the basic processes that happen at the cellular level.*
- *The graduate analyzes different types of cells based on their structures and biological functions.*
- *The graduate analyzes the biological basis for and patterns of heredity and gene expression.*
- *The graduate analyzes inter-dependencies of organisms and their environments.*

Networks

Networks

Networks introduces skills in configuring networking components and a network infrastructure. Learners will gain skills in optimizing network operations for availability, performance, and security, and in troubleshooting network issues. The course prepares learners for the CompTIA Network+ certification exam. Network and Security - Foundations 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*
- *The learner configures networking components.*
- *The learner configures a network infrastructure.*
- *The learner optimizes network operations for availability, performance, and security.*
- *The learner troubleshoots network issues.*
- *The learner implements network security techniques.*

Business of IT

Business of IT - Applications

Business of IT - Applications examines Information Technology Infrastructure Library (ITIL®) terminology, structure, policies, and concepts. Focusing on the management of information technology (IT) infrastructure, development, and operations, learners will explore the core principles of ITIL practices for service management to prepare them for careers as IT professionals, business managers, and business process owners. 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*
- *The learner applies Information Technology Infrastructure Library (ITIL) concepts, core components, principles, and models of service management.*
- *The learner applies the Information Technology Infrastructure Library (ITIL) six activities of the service value chain.*

IT Leadership Foundations

IT Leadership Foundations is an introductory course that provides students with an overview of organizational structures, communication, and leadership styles specific to information technology in organizations. It also introduces students to some of the power skills that help make successful IT professionals, including time management, problem solving, and emotional intelligence. Students in this course explore their own strengths and passions in relation to the field. 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 selects appropriate influential leadership strategies for workplace situations.*
- *The learner communicates ideas, opinions, and information suitable for various professional settings.*
- *The learner reflects on the emotional reactions of self and others in a variety of professional situations.*
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Business of IT - Project Management

In this course, students will build on industry standard concepts, techniques, and processes to develop a comprehensive foundation for project management activities. During a project's life cycle, students will develop the critical skills necessary to initiate, plan, execute, monitor, control, and close a project. Students will apply best practices in areas such as scope management, resource allocation, project planning, project scheduling, quality control, risk management, performance measurement, and project reporting. This course prepares students for the following certification exam: CompTIA Project+.

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 determines requirements of a project management plan.*
- *The learner identifies project factors, constraints, and risk strategies.*
- *The learner applies communication methods and change control processes within a project.*

Scripting and Programming

Scripting and Programming - Foundations

Scripting and Programming - Foundations introduces programming basics such as variables, data types, flow control, and design concepts. The course is language-agnostic in nature, ending in a survey of languages, and introduces the distinction between interpreted and compiled languages. Learners will gain skills in identifying scripts for computer program requirements and in using fundamental programming elements as part of common computer programming tasks. Learners will also gain an understanding of the logic and outcome of simple algorithms.

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 identifies scripts for computer program requirements.*
- *The learner uses fundamental programming elements as part of common computer programming tasks.*
- *The learner explains the logic and outcome of simple algorithms.*

Scripting and Automation

Scripting and Automation is the foundation for automating tasks in operating systems. Students will learn how to create PowerShell scripts that take tedious and repetitious tasks and turn them into programs that will save time. Students will learn PowerShell, an automation and configuration management tool based on a command-line shell and .NET Framework.

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 tools that automate manual processes for an organization.*
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Web Development

Web Development Foundations

Web Development Foundations introduces students to web design and development using HTML, XML, and Cascading Style Sheets (CSS), the foundational languages of the web. This course also covers how to troubleshoot problems using developer tools and integrated development environments commonly employed in web development. 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 creates the structure of basic web documents using HTML and XML.*
- *The learner implements web page formatting and interface aesthetics using CSS*
- *The learner resolves software problems in web development environments with debugging tools.*

Networking

Python for IT Automation

Python for IT Automation covers the fundamentals of the Python language and its features to control program flow, inform decisions, and automate IT tasks and processes. The course emphasizes a systematic approach to solving problems and the application of programming logic to administer secure, scalable, and resilient IT networks and 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 applies Python principles and syntax to manage variables, data structures, and operators and to perform IT tasks.*
- *The learner creates Python scripts using control structures to automate system tasks.*
- *The learner integrates Python scripts, modules, packages, and libraries to automate networking tasks and processes.*

Data Management

Data Management - Foundations

Data Systems Administration

Data System Administration provides learners with foundational skills to become a Database Administrator (DBA). This course illustrates how DBAs ensure businesses are able to leverage significant data to increase profitability and support key business functions. Topics include database management tools, account administration, recovery procedures, and maintenance through upgrades and migrations.

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 performs database administration tasks from resource allocation to performance tuning.*
- *The learner manages user accounts, roles, and privileges of data access according to enterprise standards and policies.*
- *The learner performs backup and restore procedures in accordance with enterprise policies and requirements.*
- *The learner upgrades database processes and procedures for business optimization.*

Data Management - Applications

Data Management - Applications covers conceptual data modeling and introduces MySQL. Students will learn how to create simple to complex SELECT queries, including subqueries and joins, and how to use SQL to update and delete data. Topics covered in this course include exposure to MySQL; creating and modifying databases, tables, views, foreign keys and primary keys (FKs and PKs), and indexes; populating tables; and developing simple Select-From-Where (SFW) queries to complex 3+ table join queries. The following course is a prerequisite: Data Management - Foundations.

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 recommends databases and database management systems to meet organizational needs.*
- *The learner queries database tables and views with SQL code.*
- *The learner creates DML statements that insert, update, and delete data in data tables.*
- *The learner implements joins and aggregate functions in SQL queries.*

Web and Cloud Security

Managing Cloud Security

Managing Cloud Security prepares learners to safeguard cloud data with identity and access management and to implement secure solutions in cloud service models. Learners will be introduced to skills in identifying security policies and procedures for cloud applications and in implementing operational capabilities, procedures, and training in relation to organizational needs. Learners will also gain skills in conducting risk analysis and risk management in alignment with disaster recovery and business continuity plans and in identifying legal, compliance, and ethical concerns.

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 safeguards cloud data with identity and access management.*
- *The learner implements secure solutions in cloud service models.*
- *The learner implements operational capabilities, procedures, and training in relation to organizational needs.*
- *The learner identifies security policies and procedures for cloud applications.*
- *The learner conducts risk analysis and risk management in alignment with disaster recovery and business continuity plans.*
- *The learner identifies legal, compliance, and ethical concerns within a cloud environment.*

IT Cloud

Azure DevOps Solutions

Azure DevOps Solutions provides the learner with skills to accomplish the following technical tasks: Designing and implementing strategies for collaboration, code, infrastructure, source control, security, compliance, continuous integration, testing, delivery, monitoring, and feedback. This course expects candidates to have intermediate-level skills for administering Azure and understand Azure development and DevOps processes. The following courses are prerequisites: Networks and Security—Foundations; Networks; Networks and Security—Applications; Cloud Foundations; Cloud Platform Solutions; Azure Fundamentals; and Azure Developer Associate

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 instrumentation strategies.*
- *The learner describes Site Reliability Engineering (SRE) strategies.*
- *The learner defines components of security and compliance plans.*
- *The learner manages source control.*
- *The learner describes DevOps communication and collaboration techniques.*
- *The learner defines continuous integration and automation.*
- *The learner defines continuous delivery and deployment strategies.*

Information Assurance

Introduction to Cryptography

Introduction to Cryptography introduces skills in applying cryptography principles in alignment with organizational and information security guidelines. Students will determine requirements and techniques for cryptanalysis. This course builds skills in implementing encryption methods with symmetric and asymmetric algorithms.

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 cryptography principles in alignment with organizational and information security guidelines.*
- *The learner implements encryption methods with symmetric and asymmetric algorithms.*

Information Technology Management

Internet of Things (IoT) and Infrastructure

Internet of Things (IoT) and Infrastructure introduces students to emerging technologies connecting the internet to a variety of physical objects. The course reviews the business requirements for sensors and securely storing, transmitting, and processing the data they generate. As new use cases emerge, ethical and privacy issues become relevant aspects of business development. 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 identifies Internet of Things (IoT) network and cloud architectures.*
- *The learner determines business requirements for data collection and analysis for the Internet of Things (IoT).*
- *The learner describes Internet of Things (IOT) security solutions.*
- *The learner defines requirements and parameters for Internet of Things (IOT) ethics, access, and privacy issues.*
- *The learner identifies emerging Internet of Things (IOT) use cases within organizations, marketplaces, and industries.*

Accessibility and Accommodations

Western Governors University is committed to providing equal access to its academic programs to all qualified students. WGU's Accessibility Services team supports this mission by providing support, resources, advocacy, collaboration, and academic accommodations for students with disabilities and other qualifying conditions under the Americans with Disabilities Act (ADA). WGU encourages student to complete the Accommodation Request Form as soon as they become aware of the need for an accommodation. Current and prospective students can reach the Accessibility Services team Monday through Friday 8:00 a.m. to 5:00 p.m. MST at 1-877-HELP-WGU (877-435-7948) x5922 or at ADASupport@wgu.edu.