WESTERN GOVERNORS UNIVERSITY

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Program Guidebook

Master of Science, Information Security and Assurance

The Master of Science in Information Security and Assurance is a competency-based degree program that encompasses the main security domains of knowledge developed following strict guidelines for information security and assurance education prescribed by the National Security Agency.

Understanding the Competency-Based Approach

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

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

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

Accreditation

Western Governors University is the only university in the history of American higher education to have earned accreditation from four regional accrediting commissions. WGU's accreditation was awarded by (1) the Northwest Commission on Colleges and Universities, (2) the Higher Learning Commission of the North Central Association of Colleges and Schools, (3) the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges, and (4) the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. The university's accreditation status is now managed by the Northwest Commission on Colleges and Universities (NWCCU). The WGU Teachers College is accredited by the National Council for Accreditation of Teacher Education (NCATE). The nursing programs are accredited by the Commission on Collegiate Nursing Education (CCNE). The Health Informatics program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

The Degree Plan

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

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

WGU's Mentoring Approach

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

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

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

Connecting with Other Mentors and Fellow Students

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

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

Orientation

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

Transferability of Prior College Coursework

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

[Click here for the Student Handbook](#)

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

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

Continuous Enrollment, On Time Progress, and Satisfactory Academic Progress

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

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

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

Satisfactory Academic Progress (SAP) is particularly important to students on financial aid because you must achieve SAP in order to maintain eligibility for financial aid. We will measure your SAP quantitatively by reviewing the number of competency units you have completed each term. In order to remain in good academic standing, you must complete at least 66.67% of the units you attempt over the length of your program—including any courses you add to your term to accelerate your progress. Additionally, during your first term at WGU you must pass at least 3 competency units in order to remain eligible for financial aid. We know that SAP is complex, so please contact a financial aid counselor should you have additional questions.

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're 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. It includes a list that can be referenced to determine the mobile friendliness of all core course materials used in a program.

 Student Handbook article: Can I use my mobile device 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* Master of Science, Information Security and Assurance

Course Description	CUs	Term
Current and Emerging Technology	3	1
Security Policies and Standards - Best Practices	3	1
Risk Management	2	1
Cryptography	3	2
Cyberlaw, Regulations, and Compliance	3	2
Vulnerability Assessment	2	2
Ethical Hacking	4	3
Forensics and Network Intrusion	4	3
Disaster Recovery Planning, Prevention and Response	2	4
Information Security and Assurance Capstone Project	4	4

Changes to Curriculum

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

Areas of Study for Master of Science, Information Security and Assurance

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.

Current and Emerging Technology

Current and Emerging Technology

This course focuses on the tools and skills to evaluate the acceptance and adoption of technology within various types of organizational cultures. The course will address topics such as diffusion, innovation, hype theory, needs analysis, change agents, implementation planning, and adoption models. Students will demonstrate the ability to make sound judgments regarding the selection, adoption, implementation, and evaluation of technologies as they related to organizational culture, strategy, and objective.

This course covers the following competencies:

- *The graduate develops adoption plans that address organizational culture and potential obstacles to the successful adoption of innovative technology.*

- *The graduate recommends innovative technology solutions in alignment with a given organization's mission and goals.*

- *The graduate evaluates potential implications of the adoption of various leading-edge technologies.*

- *The graduate integrates theories surrounding the adoption and diffusion of technology into the evaluation of prospective technologies.*

- *The graduate conducts a needs analysis of an organization that identifies issues and problems for which an innovative technology might represent a solution.*

- *The graduate analyzes potential organizational culture barriers to the adoption of new technology for a given organization.*

- *The graduate evaluates potential benefits of the adoption of various leading-edge technologies.*

Security Policies and Standards

Security Policies and Standards - Best Practices

This course focuses on the practices of planning and implementing organization-wide security and assurance initiatives as well as auditing assurance processes.

This course covers the following competencies:

- *The graduate evaluates security threats and identifies and applies security controls based on analyses and industry standards and best practices.*

- *The graduate identifies and discusses the Information Assurance certification and accreditation (C&A) process.*

- *The graduate evaluates the practice of defining and implementing a security audit and conducts an information security audit using industry best practices.*

Risk Management

Risk Management

Content focuses on categorizing levels of risk and understanding how risk can impact the operations of the business through a scenario involving the creation of a risk management program and business continuity program for a company and a business situation reacting to a crisis/disaster situation affecting the company.

This course covers the following competencies:

- *The graduate applies international standards to company operations and assesses and recommends strategies for maintaining organizational stability and continuity in the global marketplace.*

- *The graduate makes ethical decisions for the use of information technology and creates processes to maintain the security of data in information technology systems.*

- *The graduate analyzes risks and values and uses a variety of decision analysis tools and decision theory to evaluate alternatives during decision-making processes.*

- *The graduate uses risk control and risk optimization analytics and strategies to maximize returns relative to risk for organizations.*

- *The graduate analyzes enterprise continuity plans and the continuity planning process to ensure the inclusion of essential elements, processes, and stakeholder roles.*

- *The graduate evaluates internal and external risks and recommends risk mitigation strategies and techniques to an organization.*

- *The graduate applies the problem solving process to solve organizational and team problems, and develops strategies to avoid decision-making pitfalls.*

- *The graduate develops and analyzes organizational contingency plans for responding to sudden and rapid environmental changes.*

- *The graduate develops and assesses enterprise risk management programs for organizations and incorporates industry best practices in risk management processes and programs.*

Cryptography

Cryptography

This course covers the following competencies:

- *The graduate applies appropriate symmetric and asymmetric cryptography algorithms.*

- *The graduate applies cryptography to secure email and web-based communications.*

- *The graduate evaluates cryptographic methods for establishing and maintaining network security.*

- *The graduate applies appropriate cryptographic technologies to secure electronic transactions and financial systems.*

Cyberlaw

Cyberlaw, Regulations, and Compliance

Cyberlaw, Regulations and Compliance prepares students to participate in legal analysis of relevant cyberlaws and address governance, standards, policies, and legislation. Students will conduct a security risk analysis for an enterprise system. In addition, students will determine cyber requirements for third-party vendor agreements. Students will also evaluate provisions of both the 2001 and 2006 USA PATRIOT Acts.

This course covers the following competencies:

- *The graduate explains the underlying principles governing e-commerce third-party vendor agreements and translates them into practical recommendations for the implementation of such agreements.*

- *The graduate evaluates the application of current laws and regulations in situations involving constitutional controversy and authority, deterring terrorism, ethical implications, or cybercrime.*

- *The graduate ensures alignment of regulatory requirements and standards with appropriate information security and assurance controls for organizations that process or hold private, financial or medical information electronically.*

- *The graduate analyzes cybercrime scenarios to determine potential implications to enterprise continuity.*

- *The graduate develops a legal analysis addressing legal issues, standards, policies, legislation, and governance related to cybercrimes for enterprise systems.*

Hacking

Vulnerability Assessment

Vulnerability Assessment will prepare learners to evaluate system and network penetration. Topics include system and network penetration testing; penetration analysis; and advanced social engineering.

This course covers the following competencies:

- *The graduate evaluates security tests and best practices for analyzing the results of penetration testing of a network system.*

- *The graduate evaluates threats posed by social engineering and determines common techniques and methods to use when conducting or protecting against social engineering.*

- *The graduate recognizes common threats, identifies practical and legal issues of system and network penetration testing, and uses best practices to evaluate penetration tests.*

- *The graduate evaluates vulnerability assessments for risks, security threats, and system and network testing.*

Ethical Hacking

Ethical Hacking builds the skills necessary to protect an organization's information system from unauthorized access and system hacking. Topics include security threats, penetration testing, vulnerability analysis, risk mitigation, business-related issues, and countermeasures. Students will learn how to expose system vulnerabilities, solutions for eliminating and/or preventing them, and how to apply hacking skills on different types of networks and platforms. This course prepares students for the following certification exam: EC-Council's Ethical Hacker certification exam (312-50). This course has no prerequisites.

This course covers the following competencies:

- *The graduate evaluates various network system hacking counter-techniques.*

- *The graduate evaluates industry best practices for securing a wireless network, identifies the threats to wireless security, and associates threats with known countermeasures.*

- *The graduate evaluates techniques used in footprinting and implements industry best practices to protect against this type of information asset vulnerability.*

- *The graduate identifies known web server vulnerabilities and demonstrates industry best practices to protect against this type of threat.*

- *The graduate analyzes ethical and legal issues related to the unauthorized or unwanted access into and of information assets, including types of hacking technologies and related skills.*

- *The graduate identifies common web application vulnerabilities and uses industry best practices to protect against this type of threat.*

Forensics and Network Intrusion

Forensics and Network Intrusion

Forensics and Network Intrusion builds proficiency in detecting hacking attacks and properly extracting evidence to report the crime and conduct audits to prevent future attacks. Topics include computer forensics in today's world; media and operating system forensics; data and file forensics; audits and investigations; and device forensics. This course prepares

students for the following certification exam: EC-Council Computer Hacking Forensic Investigator. This course has no prerequisites.

This course covers the following competencies:

- *The graduate evaluates forensic investigations of physical and virtual devices that include routers, e-mail servers, mobile devices, and personal data assistants (PDAs).*

- *The graduate evaluates a forensic investigation on storage media and operating systems, including security and vulnerabilities.*

- *The graduate analyzes a network systems and file audit.*

- *The graduate evaluates a computer forensic investigation on stored data, including the use of tools and processes.*

- *The graduate evaluates a forensic investigation plan for modern information system assets, including legal requirements related to computer forensics.*

Disaster Recovery

Disaster Recovery Planning, Prevention and Response

This course prepares students to plan and execute industry best practices related to conducting organization-wide information assurance initiatives and to preparing an organization for implementing a comprehensive Information Assurance Management program.

This course covers the following competencies:

- *The graduate evaluates the background, purpose, and value of a comprehensive disaster recovery plan; integrates principles of disaster recovery and enterprise continuity; and documents the plans in a disaster recovery and enterprise continuity brief.*

- *The graduate identifies, evaluates, and applies network response procedures for attacks with special circumstances.*

- *The graduate assesses needs, threats, and solutions prior to and during a network disaster.*

Capstone

Information Security and Assurance Capstone Project

Students will be able to choose from three areas of emphasis, depending on personal and professional interests. Students will complete a capstone project that deals with a significant real-world business problem that further integrates the components of the degree. Capstone projects will require an oral defense before a committee of WGU faculty.

This course covers the following competencies:

- *The graduate integrates and synthesizes competencies from across the degree program and thereby demonstrates the ability to participate in and contribute value to the chosen professional field.*

Need More Information? WGU Student Services

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

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

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

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