

**EXPECTED COURSE OFFERINGS
CYBERSECURITY PROGRAM**

The schedule below is based on historical patterns and expected scheduling. The semester and location in which a course may be offered *is subject to change* due to instructor availability, student demand, and the need to provide an appropriate balance of subjects and course levels in all semesters. Courses may be offered at the Applied Physics Laboratory (A), Online (O), Virtual Live (VL), or as an Independent Study (IS), as indicated. Courses may also be offered in odd years (odd) or even years (even).

| Course Number | Course Name | Summer | Fall | Spring |
|---|--|---------------|-------------|---------------|
| Prerequisite Courses | | | | |
| 605.201 | Introduction to Programming Using Java | O | O | O |
| 605.202 | Data Structures | O | O | O |
| 605.203 | Discrete Mathematics | | O | O |
| 605.204 | Computer Organization | O | O | O |
| Foundation Courses | | | | |
| 605.621 | Foundations of Algorithms | O/VL | O | O |
| 695.601 | Foundations of Information Assurance | O | O/VL | O/VL |
| 695.641 | Cryptology | O | O | O/VL |
| Focus Areas | | | | |
| Analysis Assured Autonomy Cyber Operations Networks Space Cyber Systems Independent Study | | | | |
| Courses by Focus Area | | | | |
| | ANALYSIS | Summer | Fall | Spring |
| 695.641 | Cryptology | O | O | O/VL |
| 695.642 | Intrusion Detection | O | O | O |
| 695.643 | Introduction to Ethical Hacking | O | O | O |

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|---------|---|---------------|-------------|---------------|
| 695.644 | Computer Forensics | | VL | |
| 695.646 | Engineering Runtime Malware Detection | | | VL |
| 695.647 | Cyber Threat Hunting and Intelligence | | VL | |
| 695.741 | Information Assurance Analysis | O | O | O |
| 695.742 | Digital Forensics Technologies and Techniques | | O | VL |
| 695.744 | Reverse Engineering and Vulnerability Analysis | | O | O |
| 695.749 | Cyber Exercise | | | |
| 605.728 | Quantum Computation | | O | |
| | ASSURED AUTONOMY | Summer | Fall | Spring |
| 695.631 | AI for Cybersecurity | O | | |
| 695.634 | Intelligent Vehicles: Cybersecurity for Connected and Autonomous Vehicles | | VL | |
| 695.637 | Introduction to Assured AI and Autonomy | | O | |
| 695.715 | Assured Autonomy | | VL | |
| 695.737 | AI for Assured Autonomy | | | O |
| 605.613 | Introduction to Robotics | | VL | VL |
| 605.624 | Logic: Systems, Semantics, and Models | | | O |
| 605.636 | Autonomic Computing | | | VL |
| 605.649 | Introduction to Machine Learning | O | O/VL | O/VL |
| 605.746 | Advanced Machine Learning | O | | O |
| | CYBER OPERATIONS | Summer | Fall | Spring |
| 695.615 | Cyber Physical Systems Security | | O | |
| 695.622 | Web Security | O | O | O |
| 695.643 | Introduction to Ethical Hacking | O | O | O |
| 695.741 | Information Assurance Analysis | O | O | O |
| 695.742 | Digital Forensics Technologies and Techniques | | O | VL |
| 605.731 | Survey of Cloud Computing Security | O | | |
| | NETWORKS | Summer | Fall | Spring |
| 695.621 | Public Key Infrastructure and Managing E-Security | VL | O | |
| 695.622 | Web Security | O | O | O |

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|---------|--|---------------|-------------|---------------|
| 695.623 | Information Security and Privacy | | O | O |
| 695.721 | Network Security | | O | VL |
| 695.722 | Covert Channels | O | | |
| 695.723 | Advanced Web Security | | O | |
| 695.791 | Information Assurance Architectures and Technologies | O | | O |
| 605.671 | Principles of Data Communications Networks | O | O | A |
| 605.674 | Network Programming | | O | |
| 605.675 | Protocol Design | | | |
| 605.731 | Survey of Cloud Computing Security | O | | |
| 605.771 | Wired and Wireless Local and Metropolitan Area Networks | | O | |
| 635.673 | Protecting Critical Infrastructure Against Cyber Attacks | | | O |
| | SPACE CYBER | Summer | Fall | Spring |
| 695.641 | Cryptology | O | O | O/VL |
| 695.642 | Intrusion Detection | O | O | O |
| 695.644 | Computer Forensics | | VL | |
| 695.721 | Network Security | | O | VL |
| 695.741 | Information Assurance Analysis | O | O | O |
| 695.742 | Digital Forensics Technologies and Techniques | | O | VL |
| 695.744 | Reverse Engineering and Vulnerability Analysis | | O | O |
| 695.791 | Information Assurance Architectures and Technologies | O | | O |
| 605.674 | Network Programming | | O | |
| 605.716 | Modeling and Simulation of Complex Systems | | | VL |
| 605.728 | Quantum Computation | | O | |
| 675.641 | Space Systems Cybersecurity | | 3VL(HW) | |
| | SYSTEMS | Summer | Fall | Spring |
| 695.601 | Foundations of Information Assurance | O | O/VL | O/VL |
| 695.611 | Embedded Computer Systems-Vulnerabilities, Intrusions, and Protection Mechanisms | | O | O |
| 695.612 | Operating Systems Security | | VL | VL |
| 695.613 | Securing Industrial Control Systems | | VL | VL |

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|--|--|---------------|-------------|---------------|
| 695.614 | Security Engineering | | | VL |
| 695.615 | Cyber Physical Systems Security | | O | |
| 695.711 | Java Security | | O | |
| 695.712 | Authentication Technologies | | VL | |
| 695.715 | Assured Autonomy | | VL | |
| 605.601 | Foundations of Software Engineering | O/VL | O/VL | O/VL |
| 605.609 | DevOps and Secure Software Development | O | O | O |
| 605.612 | Operating Systems | | O | O |
| 605.621 | Foundations of Algorithms | O/VL | O | O |
| 605.704 | Object-Oriented Analysis and Design | O | O | O |
| 605.715 | Software Development for Real-Time Embedded Systems | | O | O |
| 605.716 | Modeling and Simulation of Complex Systems | | | VL |
| 605.729 | Formal Methods | | | VL |
| 635.673 | Protecting Critical Infrastructure Against Cyber Attacks | | | O |
| | INDEPENDENT STUDY | Summer | Fall | Spring |
| 695.795 | Capstone Project in Cybersecurity | | | O/VL |
| 695.801 | Independent Study in Cybersecurity I | IS | IS | IS |
| 695.802 | Independent Study in Cybersecurity II | IS | IS | IS |
| <i>605.xxx see the Computer Science Program; 705.xxx see the Artificial Intelligence Program; 601.xxx see the Computer Science full-time Program</i> | | | | |