## Appendix A

The proposed Ph.D. in Cyber Defense curriculum is mapped to the knowledge, skills, and abilities (KSA) as outlined in the National Initiative for Cybersecurity Education (NICE) framework. Appendix A identifies the relevant KSA-ID numbers and statements that match our curriculum.

| KSA-ID | Statement | DSU Course | NICE Competency Area |
|---|---|---|---|
| S0304 | Skill to access information on current assets available, usage. | INFA713 | Asset / Inventory Management |
| A0130 | Ability to ensure that senior officials within the organization provide information security for the information and systems that support the operations and assets under their control. | INFA713 | Asset / Inventory Management |
| S0186 | Skill in applying crisis planning procedures. | INFA720 | Business Continuity |
| K0032 | Knowledge of resiliency and redundancy. | INFA720 | Business Continuity |
| S0244 | Skill in managing client relationships, including determining client needs/requirements, managing client expectations, and demonstrating commitment to delivering quality results. | INFA713 | Client Relationship Management |
| K0433 | Knowledge of forensic implications of operating system structure and operations. | INFA721 | Computer Forensics |
| K0449 | Knowledge of how to extract, analyze, and use metadata. | INFA721 | Computer Forensics |
| K0573 | Knowledge of the fundamentals of digital forensics to extract actionable intelligence. | INFA721 | Computer Forensics |
| K0128 | Knowledge of types and collection of persistent data. | INFA721 | Computer Forensics |
| K0182 | Knowledge of data carving tools and techniques (e.g., Foremost). | INFA721 | Computer Forensics |
| K0017 | Knowledge of concepts and practices of processing digital forensic data. | INFA721 | Computer Forensics |
| K0184 | Knowledge of anti-Forensics tactics, techniques, and procedures. | INFA721 | Computer Forensics |
| K0185 | Knowledge of forensics lab design configuration and support applications (e.g., VMWare, Wireshark). | INFA721 | Computer Forensics |
| K0268 | Knowledge of forensic footprint identification. | INFA721 | Computer Forensics |
| K0304 | Knowledge of concepts and practices of processing digital forensic data. | INFA721 | Computer Forensics |
| S0047 | Skill in preserving evidence integrity according to standard operating procedures or national standards. | INFA721 | Computer Forensics |
| S0065 | Skill in identifying and extracting data of forensic interest in diverse media (i.e., media forensics). | INFA721 | Computer Forensics |
| S0068 | Skill in collecting, processing, packaging, transporting, and storing electronic evidence to avoid alteration, loss, physical damage, or destruction of data. | INFA721 | Computer Forensics |
| S0069 | Skill in setting up a forensic workstation. | INFA721 | Computer Forensics |
| S0071 | Skill in using forensic tool suites (e.g., EnCase, Sleuthkit, FTK). | INFA721 | Computer Forensics |

| | | | |
|---|---|---|---|
| S0075 | Skill in conducting forensic analyses in multiple operating system environments (e.g., mobile device systems). | INFA721 | Computer Forensics |
| S0120 | Skill in reviewing logs to identify evidence of past intrusions. | INFA721 | Computer Forensics |
| S0133 | Skill in processing digital evidence, to include protecting and making legally sound copies of evidence. | INFA721 | Computer Forensics |
| A0043 | Ability to conduct forensic analyses in and for both Windows and Unix/Linux environments. | INFA721 | Computer Forensics |
| K0118 | Knowledge of processes for seizing and preserving digital evidence. | INFA721 | Computer Forensics |
| K0122 | Knowledge of investigative implications of hardware, Operating Systems, and network technologies. | INFA721 | Computer Forensics |
| K0133 | Knowledge of types of digital Forensics data and how to recognize them. | INFA721 | Computer Forensics |
| K0134 | Knowledge of deployable Forensics. | INFA721 | Computer Forensics |
| K0447 | Knowledge of how to collect, view, and identify essential information on targets of interest from metadata (e.g., email, http). | INFA721 | Computer Forensics |
| K0132 | Knowledge of which system files (e.g., log files, registry files, configuration files) contain relevant information and where to find those system files. | INFA721 | Computer Forensics |
| A0005 | Ability to decrypt digital data collections. | INFA721 | Computer Forensics |
| S0090 | Skill in analyzing anomalous code as malicious or benign. | INFA721 | Computer Forensics |
| S0091 | Skill in analyzing volatile data. | INFA721 | Computer Forensics |
| A0175 | Ability to examine digital media on multiple operating system platforms. | INFA721 | Computer Forensics |
| K0157 | Knowledge of cyber defense and information security policies, procedures, and regulations. | INFA754 | Computer Network Defense |
| K0408 | Knowledge of cyber actions (i.e. cyber defense, information gathering, environment preparation, cyber-attack) principles, capabilities, limitations, and effects. | INFA754 | Computer Network Defense |
| S0124 | Skill in troubleshooting and diagnosing cyber defense infrastructure anomalies and work through resolution. | INFA754 | Computer Network Defense |
| K0110 | Knowledge of adversarial tactics, techniques, and procedures. | INFA754 | Computer Network Defense |
| K0424 | Knowledge of denial and deception techniques. | INFA754 | Computer Network Defense |
| K0587 | Knowledge of the POC's, databases, tools and applications necessary to establish environment preparation and surveillance products. | INFA754 | Computer Network Defense |
| K0191 | Knowledge of signature implementation impact for viruses, malware, and attacks. | INFA754 | Computer Network Defense |
| K0412 | Knowledge of cyber lexicon/terminology | INFA754 | Computer Network Defense |
| S0092 | Skill in identifying obfuscation techniques. | INFA754 | Computer Network Defense |
| S0096 | Skill in reading and interpreting signatures (e.g., Suricata). | INFA754 | Computer Network Defense |
| K0530 | Knowledge of security hardware and software options, including the network artifacts they induce and their effects on exploitation. | INFA754 | Computer Network Defense |

| | | | |
|---|---|---|---|
| S0129 | Skill in using outlier identification and removal techniques. | INFA754 | Computer Network Defense |
| K0493 | Knowledge of obfuscation techniques (e.g., TOR/Onion/anonymizers, VPN/VPS, encryption). | INFA754 | Computer Network Defense |
| S0020 | Skill in developing and deploying signatures. | INFA754 | Computer Network Defense |
| K0046 | Knowledge of intrusion detection methodologies and techniques for detecting host and network-based intrusions. | INFA754 | Computer Network Defense |
| K0160 | Knowledge of the common attack vectors on the network layer. | INFA754 | Computer Network Defense |
| K0507 | Knowledge of organization or partner exploitation of digital networks. | INFA754 | Computer Network Defense |
| S0025 | Skill in detecting host and network based intrusions via intrusion detection technologies (e.g., Suricata). | INFA754 | Computer Network Defense |
| S0079 | Skill in protecting a network against malware. (e.g., NIPS, anti-malware, restrict/prevent external devices, spam filters). | INFA754 | Computer Network Defense |
| S0023 | Skill in designing security controls based on cybersecurity principles and tenets. | INFA754 | Computer Network Defense |
| K0324 | Knowledge of Intrusion Detection System (IDS)/Intrusion Prevention System (IPS) tools and applications. | INFA754 | Computer Network Defense |
| K0369 | Knowledge of basic malicious activity concepts (e.g., foot printing, scanning and enumeration). | INFA754 | Computer Network Defense |
| K0405 | Knowledge of current computer-based intrusion sets. | INFA754 | Computer Network Defense |
| K0440 | Knowledge of host-based security products and how those products affect exploitation and reduce vulnerability. | INFA754 | Computer Network Defense |
| S0053 | Skill in tuning sensors. | INFA754 | Computer Network Defense |
| K0472 | Knowledge of intrusion detection systems and signature development. | INFA754 | Computer Network Defense |
| K0473 | Knowledge of intrusion sets. | INFA754 | Computer Network Defense |
| S0370 | Skill to use cyber defense Service Provider reporting structure and processes within one's own organization. | INFA754 | Computer Network Defense |
| A0128 | Ability to apply techniques for detecting host and network-based intrusions using intrusion detection technologies. | INFA754 | Computer Network Defense |
| S0258 | Skill in recognizing and interpreting malicious network activity in traffic. | INFA754 | Computer Network Defense |
| K0422 | Knowledge of deconfliction processes and procedures. | INFA713 | Conflict Management |
| K0423 | Knowledge of deconfliction reporting to include external organization interaction. | INFA713 | Conflict Management |
| K0126 | Knowledge of Supply Chain Risk Management Practices (NIST SP 800-161) | INFA733 | Contracting/Procurement |
| A0070 | Ability to apply critical reading/thinking skills. | INFA713 | Critical Thinking |
| A0085 | Ability to exercise judgment when policies are not well-defined. | INFA713 | Critical Thinking |
| S0017 | Skill in creating and utilizing mathematical or statistical models. | INFA754 | Data Analysis |

| | | | |
|---|---|---|---|
| S0125 | Skill in using basic descriptive statistics and techniques (e.g., normality, model distribution, scatter plots). | INFA754 | Data Analysis |
| K0083 | Knowledge of sources, characteristics, and uses of the organization's data assets. | INFA713 | Data Management |
| K0097 | Knowledge of the characteristics of physical and virtual data storage media. | INFA713 | Data Management |
| K0377 | Knowledge of classification and control markings standards, policies and procedures. | INFA713 | Data Management |
| K0260 | Knowledge of Personally Identifiable Information (PII) data security standards. | INFA710 | Data Privacy and Protection |
| K0066 | Knowledge of Privacy Impact Assessments. | INFA710<br>INFA715 | Data Privacy and Protection |
| K0262 | Knowledge of Personal Health Information (PHI) data security standards. | INFA710 | Data Privacy and Protection |
| K0261 | Knowledge of Payment Card Industry (PCI) data security standards. | INFA710 | Data Privacy and Protection |
| K0615 | Knowledge of privacy disclosure statements based on current laws. | INFA715 | Data Privacy and Protection |
| S0354 | Skill in creating policies that reflect the business's core privacy objectives. | INFA715 | Data Privacy and Protection |
| A0110 | Ability to monitor advancements in information privacy laws to ensure organizational adaptation and compliance. | INFA715 | Data Privacy and Protection |
| A0125 | Ability to author a privacy disclosure statement based on current laws. | INFA715 | Data Privacy and Protection |
| A0167 | Ability to recognize the importance of auditing Communications Security (COMSEC) material and accounts. | INFA710 | Data Privacy and Protection |
| K0018 | Knowledge of encryption algorithms | INFA723 | Encryption |
| K0019 | Knowledge of cryptography and cryptographic key management concepts | INFA723 | Encryption |
| K0190 | Knowledge of encryption methodologies. | INFA723 | Encryption |
| K0428 | Knowledge of encryption algorithms and tools for wireless local area networks (WLANs). | INFA723 | Encryption |
| K0277 | Knowledge of current and emerging data encryption (e.g., Column and Tablespace Encryption, file and disk encryption) security features in databases (e.g. built-in cryptographic key management features). | INFA723 | Encryption |
| K0305 | Knowledge of data concealment (e.g. encryption algorithms and steganography). | INFA723 | Encryption |
| K0308 | Knowledge of cryptology. | INFA723 | Encryption |
| K0403 | Knowledge of cryptologic capabilities, limitations, and contributions to cyber operations. | INFA723 | Encryption |
| S0164 | Skill in assessing the application of cryptographic standards. | INFA723 | Encryption |
| K0427 | Knowledge of encryption algorithms and cyber capabilities/tools (e.g., SSL, PGP). | INFA723 | Encryption |
| K0232 | Knowledge of critical protocols (e.g., IPSEC, AES, GRE, IKE). | INFA723 | Encryption |
| S0089 | Skill in one-way hash functions (e.g., Secure Hash Algorithm [SHA], Message Digest Algorithm [MD5]). | INFA723 | Encryption |

| | | | |
|---|---|---|---|
| S0298 | Skill in verifying the integrity of all files. (e.g., checksums, Exclusive OR, secure hashes, check constraints, etc.). | INFA723 | Encryption |
| K0025 | Knowledge of digital rights management. | INFA723 | Encryption |
| K0201 | Knowledge of symmetric key rotation techniques and concepts. | INFA723 | Encryption |
| S0138 | Skill in using Public-Key Infrastructure (PKI) encryption and digital signature capabilities into applications (e.g., S/MIME email, SSL traffic). | INFA723 | Encryption |
| K0104 | Knowledge of Virtual Private Network (VPN) security. | INFA723 | Encryption |
| S0059 | Skill in using Virtual Private Network (VPN) devices and encryption. | INFA723 | Encryption |
| K0285 | Knowledge of implementing enterprise key escrow systems to support data-at-rest encryption. | INFA723 | Encryption |
| K0200 | Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]). | INFA710 | Enterprise Architecture |
| K0282 | Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]). | INFA710 | Enterprise Architecture |
| A0037 | Ability to leverage best practices and lessons learned of external organizations and academic institutions dealing with cyber issues. | INFA731 | External Awareness |
| K0233 | Knowledge of the National Cybersecurity Workforce Framework, work roles, and associated tasks, knowledge, skills, and abilities. | INFA731 | External Awareness |
| K0288 | Knowledge of industry standard security models. | INFA710 | External Awareness |
| K0313 | Knowledge of external organizations and academic institutions with cyber focus (e.g., cyber curriculum/training and Research & Development). | INFA731 | External Awareness |
| K0336 | Knowledge of access authentication methods. | INFA754 | Identity Management |
| K0337 | Knowledge of authentication, authorization, and access control methods. | INFA754 | Identity Management |
| K0519 | Knowledge of planning timelines adaptive, crisis action, and time-sensitive planning. | INFA720 | Incident Management |
| S0175 | Skill in performing root cause analysis. | INFA720 | Incident Management |
| K0041 | Knowledge of incident categories, incident responses, and timelines for responses. | INFA720 | Incident Management |
| K0042 | Knowledge of incident response and handling methodologies. | INFA720 | Incident Management |
| K0150 | Knowledge of enterprise incident response program, roles, and responsibilities. | INFA720 | Incident Management |
| K0399 | Knowledge of crisis action planning and time sensitive planning procedures. | INFA720 | Incident Management |
| A0025 | Ability to accurately define incidents, problems, and events in the trouble ticketing system. | INFA720 | Incident Management |
| K0543 | Knowledge of target estimated repair and recuperation times. | INFA720 | Incident Management |

| | | | |
|---|---|---|---|
| K0343 | Knowledge of root cause analysis techniques. | INFA720 | Incident Management |
| K0231 | Knowledge of crisis management protocols, processes, and techniques. | INFA720 | Incident Management |
| K0037 | Knowledge of Security Assessment and Authorization process. | INFA713 | Information Assurance |
| K0044 | Knowledge of cybersecurity and privacy principles and organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation). | INFA713 | Information Assurance |
| K0211 | Knowledge of confidentiality, integrity, and availability requirements. | INFA713 | Information Assurance |
| K0295 | Knowledge of confidentiality, integrity, and availability principles. | INFA713 | Information Assurance |
| S0006 | Skill in applying confidentiality, integrity, and availability principles. | INFA713 | Information Assurance |
| K0112 | Knowledge of defense-in-depth principles and network security architecture. | INFA713 | Information Systems/Network Security |
| S0238 | Skill in information prioritization as it relates to operations. | INFA713 | Information Management |
| S0170 | Skill in configuring and utilizing computer protection components (e.g., hardware firewalls, servers, routers, as appropriate). | INFA754 | Information Systems/Network Security |
| S0097 | Skill in applying security controls. | INFA754 | Information Systems/Network Security |
| K0004 | Knowledge of cybersecurity and privacy principles. | INFA715 | Information Systems/Network Security |
| K0276 | Knowledge of security management. | INFA710<br>INFA715<br>INFA758 | Information Systems/Network Security |
| K0488 | Knowledge of network security implementations (e.g., host-based IDS, IPS, access control lists), including their function and placement in a network. | INFA754 | Information Systems/Network Security |
| S0146 | Skill in creating policies that enable systems to meet performance objectives (e.g. traffic routing, SLA's, CPU specifications). | INFA713<br>INFA758 | Information Technology Assessment |
| S0038 | Skill in identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system. | INFA758 | Information Technology Assessment |
| S0066 | Skill in identifying gaps in technical capabilities. | INFA713 | Information Technology Assessment |
| K0053 | Knowledge of measures or indicators of system performance and availability. | INFA758 | Information Technology Assessment |
| S0085 | Skill in conducting audits or reviews of technical systems. | INFA745 | Information Technology Assessment |
| A0023 | Ability to design valid and reliable assessments. | INFA713 | Information Technology Assessment |
| K0331 | Knowledge of network protocols (e.g., Transmission Critical Protocol (TCP), Internet Protocol (IP), Dynamic Host Configuration Protocol (DHCP)), and directory services (e.g., Domain Name System (DNS)). | INFA754 | Infrastructure Design |
| K0340 | Knowledge of how traffic flows across the network (e.g., Transmission Control Protocol | INFA754 | Infrastructure Design |

| | | | |
|---|---|---|---|
| | (TCP), Internet Protocol (IP), Open System Interconnection Model (OSI)). | | |
| S0111 | Skill in interfacing with customers. | INFA713 | Interpersonal Skills |
| A0074 | Ability to collaborate effectively with others. | INFA713<br>INFA721 | Interpersonal Skills |
| S0356 | Skill in communicating with all levels of management including Board members (e.g., interpersonal skills, approachability, effective listening skills, appropriate use of style and language for the audience). | INFA713 | Interpersonal Skills |
| K0003 | Knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy. | INFA710<br>INFA715 | Legal, Government, and Jurisprudence |
| K0123 | Knowledge of legal governance related to admissibility (e.g. Rules of Evidence). | INFA721 | Legal, Government, and Jurisprudence |
| K0125 | Knowledge of processes for collecting, packaging, transporting, and storing electronic evidence while maintaining chain of custody. | INFA721 | Legal, Government, and Jurisprudence |
| K0155 | Knowledge of electronic evidence law. | INFA721 | Legal, Government, and Jurisprudence |
| K0156 | Knowledge of legal rules of evidence and court procedure. | INFA721 | Legal, Government, and Jurisprudence |
| K0168 | Knowledge of applicable laws, statutes (e.g., in Titles 10, 18, 32, 50 in U.S. Code), Presidential Directives, executive branch guidelines, and/or administrative/criminal legal guidelines and procedures. | INFA721 | Legal, Government, and Jurisprudence |
| K0222 | Knowledge of relevant laws, legal authorities, restrictions, and regulations pertaining to cyber defense activities. | INFA710 | Legal, Government, and Jurisprudence |
| K0251 | Knowledge of the judicial process, including the presentation of facts and evidence. | INFA721 | Legal, Government, and Jurisprudence |
| K0267 | Knowledge of laws, policies, procedures, or governance relevant to cybersecurity for critical infrastructures. | INFA710 | Legal, Government, and Jurisprudence |
| K0410 | Knowledge of cyber laws and their effect on Cyber planning. | INFA710 | Legal, Government, and Jurisprudence |
| K0411 | Knowledge of cyber laws and legal considerations and their effect on cyber planning. | INFA710 | Legal, Government, and Jurisprudence |
| K0524 | Knowledge of relevant laws, regulations, and policies. | INFA710 | Legal, Government, and Jurisprudence |
| S0084 | Skill in configuring and utilizing network protection components (e.g., Firewalls, VPNs, network intrusion detection systems). | INFA754 | Network Management |
| S0192 | Skill in auditing firewalls, perimeters, routers, and intrusion detection systems. | INFA754 | Network Management |
| A0097 | Ability to monitor system operations and react to events in response to triggers and/or observation of trends or unusual activity. | INFA754 | Network Management |
| A0011 | Ability to answer questions in a clear and concise manner. | INFA721 | Oral Communication |
| K0146 | Knowledge of the organization's core business/mission processes. | INFA710 | Organizational Awareness |

| | | | |
|---|---|---|---|
| K0508 | Knowledge of organization policies and planning concepts for partnering with internal and/or external organizations. | INFA733 | Organizational Awareness |
| K0510 | Knowledge of organizational and partner policies, tools, capabilities, and procedures. | INFA733 | Organizational Awareness |
| A0034 | Ability to develop, update, and/or maintain standard operating procedures (SOPs). | INFA710 | Policy Management |
| S0344 | Skill to prepare and deliver reports, presentations and briefings, to include using visual aids or presentation technology. | INFA713<br>INFA721 | Presenting Effectively |
| K0258 | Knowledge of test procedures, principles, and methodologies (e.g., Capabilities and Maturity Model Integration (CMMI)). | INFA710 | Process Control |
| K0198 | Knowledge of organizational process improvement concepts and process maturity models (e.g., Capability Maturity Model Integration (CMMI) for Development, CMMI for Services, and CMMI for Acquisitions). | INFA710 | Process Control |
| K0121 | Knowledge of information security program management and project management principles and techniques. | INFA710 | Project Management |
| K0154 | Knowledge of supply chain risk management standards, processes, and practices. | INFA733 | Risk Management |
| K0169 | Knowledge of information technology (IT) supply chain security and supply chain risk management policies, requirements, and procedures. | INFA733 | Risk Management |
| K0263 | Knowledge of information technology (IT) risk management policies, requirements, and procedures. | INFA710 | Risk Management |
| K0002 | Knowledge of risk management processes (e.g., methods for assessing and mitigating risk). | INFA713 | Risk Management |
| K0048 | Knowledge of Risk Management Framework (RMF) requirements. | INFA713 | Risk Management |
| K0149 | Knowledge of organization's risk tolerance and/or risk management approach. | INFA713 | Risk Management |
| K0165 | Knowledge of risk/threat assessment. | INFA713 | Risk Management |
| K0214 | Knowledge of the Risk Management Framework Assessment Methodology. | INFA713 | Risk Management |
| K0527 | Knowledge of risk management and mitigation strategies. | INFA713 | Risk Management |
| S0171 | Skill in performing impact/risk assessments. | INFA713 | Risk Management |
| A0120 | Ability to share meaningful insights about the context of an organization’s threat environment that improve its risk management posture. | INFA713 | Risk Management |
| K0242 | Knowledge of organizational security policies. | INFA710 | Policy Management |
| S0018 | Skill in creating policies that reflect system security objectives. | INFA710 | Policy Management |
| A0033 | Ability to develop policy, plans, and strategy in compliance with laws, regulations, policies, and standards in support of organizational cyber activities. | INFA710 | Policy Management |
| A0129 | Ability to ensure information security management processes are integrated with strategic and operational planning processes. | INFA710 | Strategic Planning |

| | | | |
|---|---|---|---|
| K0073 | Knowledge of secure configuration management techniques. (e.g., Security Technical Implementation Guides (STIGs), cybersecurity best practices on cisecurity.org). | INFA754 | System Administration |
| K0208 | Knowledge of computer based training and e-learning services. | INFA731 | Teaching Others |
| K0215 | Knowledge of organizational training policies. | INFA731 | Teaching Others |
| K0243 | Knowledge of organizational training and education policies, processes, and procedures. | INFA731 | Teaching Others |
| K0245 | Knowledge of principles and processes for conducting training and education needs assessment. | INFA731 | Teaching Others |
| A0171 | Ability to conduct training and education needs assessment. | INFA731 | Teaching Others |
| K0523 | Knowledge of products and nomenclature of major vendors (e.g., security suites - Trend Micro, Symantec, McAfee, Outpost, and Panda) and how those products affect exploitation and reduce vulnerabilities. | INFA731 | Technology Awareness |
| K0115 | Knowledge that technology that can be exploited. | INFA731 | Technology Awareness |
| K0148 | Knowledge of import/export control regulations and responsible agencies for the purposes of reducing supply chain risk. | INFA733 | TPO (Third Party Oversight) |
| K0164 | Knowledge of functionality, quality, and security requirements and how these will apply to specific items of supply (i.e., elements and processes). | INFA733 | TPO (Third Party Oversight) |
| K0266 | Knowledge of how to evaluate the trustworthiness of the supplier and/or product. | INFA733 | TPO (Third Party Oversight) |
| S0086 | Skill in evaluating the trustworthiness of the supplier and/or product. | INFA733 | TPO (Third Party Oversight) |
| A0039 | Ability to oversee the development and update of the life cycle cost estimate. | INFA733 | TPO (Third Party Oversight) |
| A0045 | Ability to evaluate/ensure the trustworthiness of the supplier and/or product. | INFA733 | TPO (Third Party Oversight) |
| K0596 | Knowledge of the request for information process. | INFA733 | TPO (Third Party Oversight) |
| S0355 | Skill in negotiating vendor agreements and evaluating vendor privacy practices. | INFA733 | TPO (Third Party Oversight) |
| K0147 | Knowledge of emerging security issues, risks, and vulnerabilities. | INFA713 | Vulnerabilities Assessment |
| A0042 | Ability to develop career path opportunities. | INFA710 | Workforce Management |
| A0014 | Ability to communicate effectively when writing. | INFA710<br>INFA713 | Written Communication |
| S0250 | Skill in preparing plans and related correspondence. | INFA710<br>INFA720 | Written Communication |
| S0301 | Skill in writing about facts and ideas in a clear, convincing, and organized manner. | INFA713 | Written Communication |