

## Area of Concentration Examples

Students in the Advanced Studies options are able to pick an Area of Concentration (AoC) to take courses towards a specialization of their choosing. You will take 36 units of courses towards your Advanced Studies. If you need more guidance, we have created some examples of concentrations and corresponding courses that you can pick from below. **Courses must be numbered 600 and above.**

Please note that courses counting for Advanced Studies **cannot count for other degree requirements**, so you should not pick courses for AoC that you will need to take towards your core requirements. Courses taken towards AoC will not show as a formal concentration on your transcript but will count for your Advanced Studies requirement seen in Stellic.

There is no guarantee that you will be enrolled in the courses below, particularly those that are in other departments outside of the INI, and in some instances you may need to change your list if you do not get into your first-choice courses. You must refer to the [Schedule of Classes](#) to determine course availability. For any course that has a formal crosslist, you may take the course under any of the crosslisted numbers. Course numbers and titles may change. If you notice such a change, please email [ini-academic@andrew.cmu.edu](mailto:ini-academic@andrew.cmu.edu) prior to enrolling in a course.

### **Concentration: Secure AI** (MSAIE-IS students not eligible)

- 14-757: Machine Learning with Adversaries in Mind **OR** 10-601: Intro to Machine Learning
- 14-795: AI Applications in Information Security
- 14-763: Systems and Toolchains **OR** 10-605: Machine Learning with Large Datasets **OR** 10-714: Deep Learning Systems **OR** 11-685/11-785: Intro to Deep Learning
- 14-691: Special Topics: AI Ethics - Multidisciplinary Perspectives and Industry Insights (6 units)
- 94-885: Responsible AI: Principles, Policies and Practices (6 units)

### **Concentration: Software Security**

- 14-829: Mobile and IoT Security
- 14-735: Secure Coding
- 14-828: Browser Security
- 14-742: Security in Networked Systems
- 17-731/18-734: Foundation of Privacy

**Concentration: Entrepreneurship**

- 14-789: AI in Business Modeling (6 units)
- 14-691: Special Topics: AI Ethics - Multidisciplinary Perspectives and Industry Insights (6 units)
- 94-807: Entrepreneurship: A New Venture (6 units)
- 45-805: Lean Entrepreneurship (6 units)
- 14-684: Cyber Law and Ethics (6 units)
- 14-788: Information Security Policy and Management **AND** 14-782: Information Security Risk Management I **OR** 14-817: Cyber Risk Modeling
- 49-802: Innovation and Entrepreneurship (SV only)
- 14-695: Special Topics: Technical Entrepreneur Coaching Hub (6 units)

**Concentration: Cloud Engineering** (MSIN not eligible)

- 14-736: Distributed Systems: Techniques, Infrastructure, and Services **OR** 15-640: Distributed Systems
- 14-848: Cloud Infrastructure **OR** 15-619: Cloud Computing
- 15-719: Advanced Cloud Computing

**Concentration: Secure IoT** (MSMITE not eligible)

- 14-642: Introduction to Embedded Systems **OR** 14-744: Mobile and Embedded Software Design
- 14-829: Mobile and IoT Security
- 14-812: Wireless Protocols and Standards for the Internet of Things (6 units) **AND** 17-627: Requirements for Embedded Systems (6 units) **OR** 17-781: Mobile and IoT Computing Services **OR** 14-841: Mobile and Pervasive Computing **OR** 17-728: Machine Learning and Sensing

**Concentration: Law and Policy**

- 19-608/95-818: Privacy, Policy, Law, and Technology **OR** 18-734/17-731: Foundations of Privacy
- 14-817: Cyber Risk Modeling **OR** 14-788: Information Security Policy and Management **AND** 14-782: Information Security Risk Management I
- 14-684: Cyber Law and Ethics (6 units)
- 14-691: Special Topics: AI Ethics - Multidisciplinary Perspectives and Industry Insights (6 units)
- 94-883: Applied Ethical Analysis (6 units)
- 94-806: Privacy in the Digital Age (6 units)

Last Updated 10-16-24

**Concentration: Network Systems** (MSIN not eligible)

- 14-760 Advanced Real World Data Networks
- 14-742: Security in Networked Systems
- 18-758: Wireless Security
- 18-750: Wireless Networks and Applications
- 14-736: Distributed Systems: Techniques, Infrastructure, and Services **OR** 15-640: Distributed Systems

**Concentration: Cyber Forensics and Incident Response** *(For the certificate, you must complete all 48 units but only 36 units will count for AoC. The other 12 units can count elsewhere within degree.)*

- 14-761: Applied Information Assurance
- 14-822: Host Based Forensics
- 14-823: Network Forensics
- 14-832: Cyber Forensics and Incident Response Capstone