Student Handbook –

For the MS in Cyber & Information Operations and Graduate Certificate in Cyber Operations

2025-2026

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1. Introduction

Welcome to the College of Information Science (InfoSci) at the University of Arizona. The College of Information Science is committed to providing a welcoming learning and research environment and a comprehensive graduate curriculum leading to Master of Science (MS) degree and/or a graduate certificate. InfoSci offers several MS degree programs and graduate certificates, including the MS in Cyber & Information Operations (MS CIO) and the Graduate Certificate in Cyber Operations, both of which can be completed fully online. Students who graduate with the MS in Cyber & Information Operations degree or the Graduate Certificate in Cyber Operations will have opportunities in government, defense, and private industry, as these graduate programs will meet the most demanding academic and technical requirements. Many federal government jobs require a graduate degree to offer competitive compensation, thus the MS in Cyber & Information Operations program further prepares graduates for success in these positions. MS CIO graduates will also be well-qualified to teach future generations of Cyber & Information Operations students, an area within the discipline where there is a significant gap in the number of qualified professionals with the knowledge and skills to be instructors at any level.

The purpose of this handbook is to serve as a guide for current graduate students on requirements for completing the MS CIO and Graduate Certificate in Cyber Operations. Graduate students are expected to follow the policies and procedures for both the University of Arizona Graduate College and the College of Information Science. Policies are updated frequently, and it is the student's responsibility to comply with current policies. Graduate College policies can be viewed online at http://grad.arizona.edu/new-and-current-students. University policies can be found at: https://grad.arizona.edu/policies and in the University catalog at: https://catalog.arizona.edu/policy-audience/graduate.

1.1. Graduate Studies Administration

The following are key contacts of individuals who will support students in their graduate studies.

Graduate Coordinator

The Graduate Coordinator provides administrative and operational support for Graduate programs, in addition to advising and assisting students with general procedures related to obtaining an InfoSci graduate degree and submitting appropriate forms.

Director of Graduate Studies

The Director of Graduate Studies oversees graduate programs. The duties of the Director of Graduate Studies include the following:

- Providing support and necessary resources to ensure professional well-being and success of graduate students from admission through graduation.
- Oversee recruitment, admission, and assessment processes for graduate programs.

- Manage operations of graduate programs including review and oversight of plans of study, transfer credits, program assessment, and other graduate student petitions.
- Schedule classes and make faculty assignments.

The Director of Graduate Studies and Graduate Coordinator assemble appropriate committees to provide overall leadership in administering graduate programs, in collaboration with the Graduate College at the University of Arizona: grad.arizona.edu.

 Points of Contact

Mike Coleman, Graduate Coordinator

Dr. Josh Pauli, Director of Graduate Studies

E-mail: CIIOGradProgs@arizona.edu

1.2.   Faculty Advisors

Upon admittance to the program, students are assigned a faculty advisor based on their interests. Students are also encouraged to identify and contact faculty members in their area of interest. A list of current InfoSci faculty and contact information can be found here: https://infosci.arizona.edu/directory

Students may request a change of graduate faculty advisor one time through the Request for Change of Graduate Faculty Advisor Form. Approval is contingent on several factors and interest does not necessarily guarantee that the change will be approved. Students must have their faculty advisor confirmed by the time they submit their Plan of Study.

2. Master of Science Degree

The Master of Science program in Cyber & Information Operations is designed to prepare individuals for cyber-related occupations and leadership positions in government, defense, law enforcement, and private industry. The curriculum includes both offensive and defensive cyber security and information operations content delivered within our state-of-the-art Cyber Virtual Learning Environment (VLE) to ensure graduate students have extensive hands-on experiences and research opportunities to develop the knowledge, skills, and abilities necessary to succeed in cyber-related careers.

2.1.   Orientation

All new MS CIO students must attend a mandatory orientation session held prior to the first day of classes. The Graduate Coordinator will inform the incoming students of the time of this orientation in advance.

2.2.   MS Degree Requirements

The following degree requirements apply:

- Students must earn at least 30 graduate credits (courses numbered 5XX, 6XX, 9XX). No course may be counted toward the requirements for more than two degrees (earned at any institution).

- The majority of coursework must be taken within the College of Information Science. Only with the Director of Graduate Studies' approval may courses be taken outside of the College.
- Graduate College policies on transfer credits must be followed. No more than 6 credits can be transferred from another university. Grades of transfer work will not be used in computing the student's grade point average (GPA).
    - Steps to requesting evaluation of transfer credits:
        1. Submit an "Evaluation of Transfer Credit" online form before the end of their first year of study, found in GradPath.
        2. The Graduate College reviews requests and provides notification of results.
        3. Students should notify the Graduate Coordinator that credits have been reviewed by the Graduate College.
        4. Director of Graduate Studies will review and notify students of results.
    More information on transfer credit can be found at: https://grad.arizona.edu/gsas/degree-requirements/masters-degrees#Transfer%20Credit.

The MS in Cyber and Information Operations degree requirements are listed below:

*Note: Students that opt for Master's Thesis will take CYBV 692 Directed Research and CYBV 696 Special Topics (Research Methods) as their 'electives.'

MS in Cyber & Information Operations		
	Requirements	Min. Units
Prerequisite	• CVBV 500 (3) Security Computing *Not required for students who completed recent coursework (within the last 3 years) in computer programming	
Core	• 21 units in CYBV CYBV501 (3): Principles of Cybersecurity CYBV523 (3): Covert Python CYBV529 (3): Cyber Law, Ethics & Policy CYBV579 (3): Cloud Security CYBV626 (3): Traffic Analysis CYBV660 (3): Zero Trust Defensive Techniques CYBV685 (3): Information Warfare	21
Electives	• 6 units of Electives CYBV525 (3): Cyber Physical Systems CYBV528 (3): Operational Tradecraft in the Information Environment CYBV535 (3): Secure Critical Infrastructures with Artificial Intelligence CYBV680 (3): Advanced Computational Propaganda CYBV692 (3): Directed Research* CYBV696 (3): Special Topics in Cyber and Intelligence Operations*	6

Report Option	• 3 units of CYBV 909 (MS Report)	3
Thesis Option	• 3 units of CYBV 910 (Thesis)*	
	Total	30

2.3. MS Plan of Study

The Plan of Study is the student's contract with the University regarding specific course requirements that the student must satisfy before becoming eligible for the MS degree. Students should consult with their advisor, Graduate Coordinator, and/or Director of Graduate Studies to identify courses to include in the plan of study. Students must submit a completed plan of study through GradPath before the end of the first year in the program. All forms are submitted in GradPath through the University of Arizona UAccess Student Center System. UAccess Student Center is accessed from: https://uaccess.arizona.edu/ and GradPath guides can be found at https://grad.arizona.edu/gsas/gradpath/gradpath-user-guides.

Performance Requirements: A cumulative GPA of 3.0 or higher must be maintained on all coursework taken for graduate credit.

Students Using Military-Connected Benefits: The Military-Connected Benefits & Certifications office will likely require that you submit your Plan of Study in your first semester in order to process your benefits in a timely manner.

2.4. MS Report vs Thesis Option

MS Report Option: The MS report option is designed for those who will work on an applied report. The topic should have practical significance and require application of graduate course material. The report typically involves application of new or existing methodologies to a current industry or community-oriented problem.

MS Thesis Option: Thesis work is designed for students who will work with a faculty member on a specific research topic. The thesis is prepared under the guidance of the faculty advisor (or other designated Graduate Faculty member better suited for specific thesis project) and is reviewed by an examining committee prior to an oral presentation. Students wishing to pursue a Doctoral degree are encouraged to choose the thesis option.

MS Committee for Thesis: Students who pursue an MS thesis are required to have a committee of at least three members. At least two members must be current Graduate Faculty. If the third member is not Graduate Faculty, they must be approved by the Graduate College as a special member.
- Once the committee is formed, the student should submit a *Committee Appointment form* through GradPath.
- Master's Theses must also be archived. More information on this archiving requirement can be found here: https://grad.arizona.edu/gsas/dissertaions-theses/submitting-and-archiving-your-thesis.

You must decide which option to take by the time you submit the Plan of Study by the end of the second semester.

3. Graduate Certificate in Cyber Operations

The Graduate Certificate in Cyber Operations is appropriate for students with a computing or cybersecurity undergraduate degree and students with unrelated undergraduate degrees that desire to enter the cybersecurity domain as practitioners, academics, and researchers. The coursework is a blend of introductory principles in security scripting and cybersecurity principles, followed by more advanced courses in offensive and defensive cyber operations. The curriculum is delivered fully online with some courses utilizing the state-of-the-art Cyber Virtual Learning Environment (VLE). The Graduate Certificate in Cyber Operations is fully stackable to our Master of Science in Cyber & Information Operations.

3.1. Orientation

All new Graduate Certificate students must attend a mandatory orientation session held prior to the first day of classes. The Graduate Coordinator will inform the incoming students of the time of this orientation in advance.

3.2. Certificate Requirements

The following certificate requirements apply:

- Students must earn at least 18 graduate credits (courses numbered 5XX, 6XX, 9XX).
- If a student is working toward more than one certificate, double-counting of credits is limited to 20% of the number of credits of the certificate with the lower credit requirement or one course, whichever is greater. No credits may count toward more than two certificates.
- The majority of coursework must be taken within the College of Information Science. Only with the Director of Graduate Studies' approval may courses be taken outside of the College.
- Graduate College policies on transfer credits must be followed. No more than 6 credits can be transferred from another university. Grades of transfer work will not be used in computing the student's grade point average (GPA).
    - o Steps to requesting evaluation of transfer credits:
        - 5. Submit an "Evaluation of Transfer Credit" online form before the end of their first year of study, found in GradPath.
        - 6. The Graduate College reviews requests and provides notification of results.
        - 7. Students should notify the Graduate Coordinator that credits have been reviewed by the Graduate College.
        - 8. Director of Graduate Studies will review and notify students of results.
    - o More information on transfer credit can be found at: https://grad.arizona.edu/gsas/degree-requirements/certificate#transfer-credit
- Course work taken more than two years prior to admission to a certificate program cannot be transferred.

The Graduate Certificate in Cyber Operations requirements are listed below:

Graduate Certificate in Cyber Operations		
	Requirements	Min. Units
Core	• 15 units in CYBV CVBV500 (3) Security Computing CYBV501 (3): Principles of Cybersecurity CYBV529 (3): Cyber Law, Ethics & Policy CYBV626 (3): Traffic Analysis CYBV660 (3): Zero Trust Defensive Techniques	15
Electives	• 3 units of Electives CYBV525 (3): Cyber Physical Systems CYBV528 (3): Operational Tradecraft in the Information Environment CYBV535 (3): Secure Critical Infrastructures with Artificial Intelligence CYBV579 (3): Cloud Security CYBV680 (3): Computational Propaganda CYBV685 (3): Information Warfare CYBV696 (3): Special Topics in Cyber and Intelligence Operations	3
	Total	18

3.3.   Certificate Plan of Study

The Plan of Study is the student's contract with the University regarding specific course requirements that the student must satisfy before becoming eligible for Graduate Certificate in Cyber Operations. Students should consult with their advisor, Graduate Coordinator, and/or Director of Graduate Studies to identify courses to include in the plan of the study. Students must submit a completed plan of study through GradPath before the end of the first year in the program. All forms are submitted in GradPath through the University of Arizona UAccess Student Center System. UAccess Student Center is accessed from: https://uaccess.arizona.edu/ and GradPath guides are at https://grad.arizona.edu/gsas/gradpath/gradpath-user-guides.

Performance Requirements: A cumulative GPA of 3.0 or higher must be maintained on all coursework taken for graduate credit.

Students Using Military-Connected Benefits: The Military-Connected Benefits & Certifications office will likely require that you submit your Plan of Study in your first semester in order to process your benefits in a timely manner.

4. Academic Policies

4.1. Grievance Procedures

A graduate student with any type of grievance should first communicate with their faculty advisor. Should the issue not be properly addressed by the faculty advisor, the student may bring the matter to the attention of the Graduate Coordinator and the Director of Graduate Studies .

- When issues cannot be resolved at the department-level, the student is encouraged to review the Graduate College grievance policy; https://grad.arizona.edu/policies/academic-policies/grievance-policy
- Summary of Grievance Types and Responsibilities is here: https://grad.arizona.edu/policies/academic-policies/summary-grievance-types-and-responsible-parties
- If a student believes they have been subject to discrimination or harassment based on race, religion, color, sex, age, national origin, disability, veteran status, sexual orientation, gender identity or genetic information, they can report such issues to the Office of Institutional Equity: https://equity.arizona.edu/

4.2. Satisfactory Academic Progress

Graduate students are required to maintain a minimum 3.00 cumulative GPA. Students should consult with both their faculty advisor and Graduate Coordinator to discuss issues pertaining to unsatisfactory progress that may result in academic probation: https://grad.arizona.edu/policies/academic-policies/academic-probation.

Students who fail to meet the GPA requirement will be placed on academic probation for one semester. Students on academic probation, under the advisement of their faculty advisor, will meet to develop a plan to raise the cumulative GPA. If after one semester the cumulative GPA has not been raised, the College of Information Science will decide whether to: (1) academically disqualify the student from the program; or (2) with approval from the Graduate College, allow the student to continue probation upon approval of a justification waiver. The student is expected to continue working with their faculty advisor and Graduate Coordinator to improve their academic standing. Students who fail to make satisfactory progress for two consecutive semesters will be dismissed from their program.

4.3. Continuous Enrollment

A student admitted to a Master's degree or graduate certificate program must register every fall and spring semester for a minimum of 1 graduate unit, from original matriculation until all course and thesis requirements are met. A semester in which a student is enrolled for course credit will be counted toward continuous enrollment. Non-credit courses, audited courses, or courses from which the student withdraws do not count toward the determination of continuous enrollment. For more information, please see: https://grad.arizona.edu/policies/enrollment-policies/continuous-enrollment. If you are receiving financial aid, you may have to take more credits per semester to keep your financial aid active. Please contact Financial Aid for details: https://financialaid.arizona.edu/.

4.4. Leave of Absence

Students who are unable to meet the above continuous enrollment status may need to apply for a formal Leave of Absence (LOA). Graduate students may apply for a LOA up to one year for the master's degree

or graduate certificate program. It is important to note that the Leave of Absence cannot be outside of the allotted time required to complete your degree program, (6 years for master's and 4 years for graduate certificates.). If a student fails to register and does not have a Leave of Absence on file, the student will be discontinued from their program by the Graduate College. A new application will be necessary for the student to continue in the program, and re-admission is not guaranteed. For additional information regarding a LOA, visit https://grad.arizona.edu/policies/enrollment-policies/leave-absence.

The Graduate Student Leave of Absence form can be completed via GradPath within UAccess. Review Graduate Petition General Instructions for directions on how to submit a LOA.

4.5.   Withdrawals

Information on Course Withdrawals can be found here: https://www.registrar.arizona.edu/faculty-staff-resources/grading/grading-policies/withdrawals.

Information on Complete Withdrawals, defined as leaving the University by dropping all classes after having paid registration fees, can be found here: https://registrar.arizona.edu/records-enrollment/enrollment/leave-absences/complete-withdrawal-term. This option for graduate and professional students only applies to the Fall and Spring (regular) Semesters.

Students can also review the drop day for a refund by visiting the Dates & Deadlines website mentioned earlier https://www.registrar.arizona.edu/dates-and-deadlines and choosing the appropriate term.

4.6.   Incomplete Grades

The full policy for Incomplete grades can be found here: https://registrar.arizona.edu/faculty-staff-resources/grading/grading-policies/incomplete.

In addition:
- Students must submit a completed Report of Incomplete form to the Graduate Coordinator: https://registrar.arizona.edu/sites/default/files/incomplete_grade_report_5-5-14.pdf
  - Both the instructor and student sign this agreement and both should retain copies.
- The report must be submitted by the last day of scheduled class.
- Per the Graduate College, any incomplete grade must be completed no later than one year from the last day of the term for the course for which the student received the incomplete: https://catalog.arizona.edu/policy/courses-credit/grading/grading-system
  - If the incomplete grade is not removed by the instructor within one year the I grade will convert to a failing grade.
- If an additional extension is needed, the student may submit a Graduate Course Extension Petition through GradPath to be reviewed by the Graduate College prior to the one-year deadline. There is no guarantee of extension.

4.7.   Graduate Student Conduct

In online courses, you will primarily communicate with instructors and peers virtually through a variety of tools such as discussion forums, email, and web conferencing. Be professional, courteous, and respectful as you would in a physical classroom. Online communication lacks the nonverbal cues that provide much of the meaning and nuances in face-to-face conversations. Choose your words carefully, phrase your

sentences clearly, and stay on topic. It is expected that students may disagree with the research presented or the opinions of their fellow classmates. To disagree at times is expected, but to disparage others' views is unacceptable. All comments should be kept civil and thoughtful.

It is also expected that you will follow the University's policy regarding threatening behavior by students and policies against discrimination and harassment. Information on these policies can be found at: https://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

https://policy rizona.edu/employment-human-resources/nondiscrimination-and-anti-harassment-policy

Please also review the University of Arizona Code of Academic Integrity to understand prohibited conduct and rights and responsibilities: https://deanofstudents.arizona.edu/policies/code-academic-integrity

Procedures for various petitions and grievances can be found on the University's Graduate College website: https://grad.arizona.edu/policies/academic-policies/summary-grievance-types-and-responsible-parties.

5. Resources for InfoSci Students

5.1. Graduate Student Academic Services

The graduate student academic services (GSAS) within the graduate college helps students, staff, and faculty advisors keep track of academic progress and the steps needed to complete a graduate degree: https://grad.arizona.edu/gsas

Links to Graduate College Resources	
GradPath is the Graduate College's degree audit system that facilitates tracking and monitoring of academic progress. GradPath allows the graduate student, the College of Information Science and Graduate College to see where a student is in their academic journey at a glance.	https://grad.arizona.edu/gsas/gradpath
Overview of Degree Requirements: In addition to InfoSci degree requirements, graduate students must meet requirements of the Graduate College as described in the link on the right.	https://grad.arizona.edu/gsas/degree-requirements.
Important dates and deadlines related to graduate degree	https://grad.arizona.edu/gsas/degree-requirements/important-degree-dates-and-deadlines
Commencement Information	https://grad.arizona.edu/gsas/commencement
Graduate College Forms	https://grad.arizona.edu/forms/gsas
The current Degree Auditor & Admissions Specialist for InfoSci graduate programs	https://grad.arizona.edu/directories/degreecounselors/

5.2. Resources for Graduate Students

The following is a curated set of resources for a productive graduate experience at the University of Arizona.

- UAccess Student enables students to update their information, enroll in courses, and check financial aid status. UAccess Student can be found here: https://uaccess.arizona.edu/. To view a video tutorial on how to enroll, watch the Add and Enroll in Classes Video Tutorial.
- University Information Technology Services (UITS) offers 24/7 IT support by phone (520) 626-8324 or online at http://uits.arizona.edu/departments/the247
- University of Arizona students can download one copy of the current version of Microsoft Office at no charge: https://uarizona.servicenow.com/spid=kb_article_view&sys_kb_id=843d64e087b052d0731954273cbb35de
- Students can download various free or discounted software applications here: https://softwarelicense.arizona.edu/students
- Career Services offers a variety of services to all University of Arizona students, including Handshake, a career management tool. To learn more, visit: https://career.arizona.edu/.
- Professional Development resources including writing resources, teaching workshops and seminars, and resources for expanding language abilities: https://gradcenter.arizona.edu/resources
- Graduate Assistant/Associate Benefits including parental leave, family and medical leave, bookstore discount, and health insurance: https://grad.arizona.edu/funding/ga/benefits-appointment
- A list of comprehensive services and support for physical, mental, emotional well-being for graduate students: https://www.arizona.edu/health-wellness-students
- Link to sign-up for campus emergency alerts - https://cirt.arizona.edu/ualert
- **Student Support Groups and Organizations:**
    - Graduate Student Professional Council: https://gpsc.arizona.edu/
    - Office of Fellowships and Community Engagement: https://gradcenter.arizona.edu/gcof/

6. Information for Prospective Graduate Students

6.1. Graduate Admissions

For regular admissions, applicants must hold a bachelor's degree. Application for admission is made by applying through GradApp: https://apply.grad.arizona.edu/users/login. No entrance exams are required. International applicants should review Graduate College admission requirements here: https://grad.arizona.edu/admissions/requirements/international-applicants

All applications require academic transcripts. Application deadlines and other admission details are available at: https://grad.arizona.edu/admissions/requirements

6.2.   Minimum Admission Requirements

Applicants interested in pursuing an InfoSci graduate program must meet the following minimum requirements:

- For degree programs, a minimum 3.0 cumulative GPA in their overall undergraduate degree or in the last 60 units of their undergraduate degree.
- For certificate programs, a minimum 2.75 cumulative GPA in their overall undergraduate degree or in the last 60 units of their undergraduate degree.
- Hold a bachelor's degree.
- Current resume or CV.
- Transcripts: https://grad.arizona.edu/admissions/requirements/transcript-requirements
    - Copies of transcripts to upload into the graduate application (GradApp).
    - Official transcripts from all previously attended institutions.
- Statement of Purpose: A document stating your goals and objectives of gaining this degree and how it will impact your future academic and/or professional goals.
- At least 1 professional or academic letter of recommendation.