THE UNIVERSITY OF ARIZONA
College of Applied Science & Technology

Graduate Student Handbook

Department of Cyber Operations, Intelligence & Information Operations

2023-2024

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1. Introduction

Welcome to the Department of Cyber Operations, Intelligence, & Information Operations (CIIO) in the College of Applied Science & Technology (CAST) at the University of Arizona. The CIIO department is committed to providing a welcoming learning and research environment and a comprehensive graduate curriculum leading to Master of Science (MS) degree. The department offers a fully online MS degree in Cyber & Information Operations. Students who graduate with the MS in Cyber & Information Operations degree will have opportunities in government, defense, and private industry, as this graduate program will meet the most demanding academic and technical requirements. Many federal government jobs require a graduate degree to offer competitive compensation, thus this program further prepares CAST graduates for success in these positions. 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 CIIO graduate programs. Graduate students are expected to follow the policies and procedures for both the University of Arizona Graduate College and the CIIO Department. Policies are updated frequently, and it's 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 CIIO Graduate programs, in addition to advising and assisting students with general procedures related to obtaining a CIIO 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.

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.

Faculty Advisor

Upon arriving at the University of Arizona, 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 CIIO faculty and contact information can be found here: https://azcast.arizona.edu/academics/cyber-operations.

CIIO Graduate Studies Contact Information

TBD, Graduate Coordinator
TBD, Director of Graduate Studies
E-mail: CIIOGradProgs@arizona.edu

2. Master of Science Degree

The CIIO Master of Science (MS) 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.

2.1. MS Degree Requirements

The following degree requirements apply:

- Students must earn at least 30 units of graduate credit (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 CIIO Department. Only with a faculty advisor's approval may courses be taken outside of CIIO.
- Graduate College policies on transfer credits must be followed. More information can be found at: https://grad.arizona.edu/gsas/degree-requirements/masters-degrees#Transfer%20Credit. No more than 6 units 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.

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

MS in Cyber & Information Operations		
	Requirements	Min. Units
Prerequisite	• CVBV 500 (3) Security Computing *Not required for students who have prior undergraduate coursework 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	6

	CYBV528 (3): Operational Tradecraft in the Information Environment CYBV581 (3): Privacy and Regulatory Requirements in Cybersecurity CYBV630 (3): Industrial Control System Security CYBV680 (3): Computational Propaganda CYBV683 (3): Strategic Cyber Management CYBV 696 (3): Special Topics in Cyber and Intelligence Operations	
Report Option	• 3 units of CYBV 909 (MS Report)	3
Thesis Option	• 3 units of CYBV 910 (Thesis)	
	Total	30

2.2. 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 the study. Students are encouraged to submit a completed plan of study through GradPath before the end of the first year in the program.

Performance Requirements: A cumulative GPA of 3.0 or higher must be maintained on all coursework taken for graduate credit. A grade of C or higher is required for a course to be used to satisfy the degree requirements (A or B for transfer courses).

2.3. 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 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 faculty members, including the faculty advisor, who will serve as the chair of the committee. 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.

3. Resources and Academic Policies for CIIO Graduate Students

3.1. Grievance Procedures

A graduate student with any type of grievance should first communicate with their faculty advisor or Director of Graduate Studies, depending on who is more appropriate from the student's view. Should the issue not be properly addressed by either faculty members, the student may bring the matter to the attention of the Graduate Coordinator and the CIIO Department head.

- 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/

3.2. 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 Program 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 mentoring plan to raise the cumulative GPA. If after one semester the cumulative GPA has not been raised, the CIIO department 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.

Continuous Enrollment

A student admitted to a Master's degree 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/.

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 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-admissions 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.

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.

3.3. Incomplete Grades

Students earning a grade of Incomplete, "I" must submit a completed Report of Incomplete form to the Graduate Coordinator: https://registrar.arizona.edu/faculty-staff-resources/grading/grading-policies/incomplete

- Incomplete grades must be completed in a timely manner and are submitted at the discretion of the course instructor. 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/grades-and-grading-system#incomplete
- If an additional extension is needed, the student may submit a Graduate Course Extension Petition to be reviewed by the Graduate College prior to the one-year deadline.

3.4. Graduate Student Academic Services

The graduate student academic services (GSAS) within the graduate college help 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, our SIE program, 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 CIIO 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 Counselor for CIIO graduate programs	https://grad.arizona.edu/directories/degreecounselors/

3.5. Resources for Graduate Students

The following are 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. Visit: http://uabookstore.arizona.edu/technology/campuslicensing/default.asp and login with netid and password
- 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/
  - Cyber specific organizations: https://azcast.arizona.edu/news-events-and-publications

3.6. 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: http://policy.web.arizona.edu/education-and-student-affairs/threatening-behavior-students http://policy.web.arizona.edu/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.

4. Information for Prospective Graduate Students

4.1. Graduate Admissions

For regular admissions, applicants should 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

4.2. Minimum Admission Requirements

Applicants interested in pursuing a CIIO graduate degree must meet the following minimum requirements:

- A minimum 3.0 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.