



MASTER'S IN CYBERSECURITY

Student Handbook

2021/2022



THE UNIVERSITY
OF ARIZONA

Eller MIS

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The Departments of Management Information Systems (MIS,) Electrical and Computer Engineering (ECE,) and Systems & Industrial Engineering (SIE) at the University of Arizona (UA) offer a Master of Science degree in Cybersecurity. This handbook only includes the additional policies, procedures and information that apply specifically to the Cybersecurity graduate program. Therefore, students must also refer to the documentation provided by the UA Graduate College for the policies and procedures that apply to all graduate students.

Graduate Students are expected to follow the policies and procedures for both the UA Graduate College and for the Departments of MIS, ECE and SIE. 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 <http://catalog.arizona.edu/>.

What is UAccess?

UAccess is a password-protected service which allows students to access personal and academic information via the Web. Your UA NetID and password are required for login.

UAccess enables students to view and make changes to their academic and personal information as well as enroll for classes and check on financial aid status. This system has dozens of useful features, which are housed under four major categories: Academic, Financial, Personal and Self-Service.

More at <http://advising.arizona.edu/content/online-tools/uaccess-student>

TIP

To go directly to UAccess Student, visit the [UAccess Portal](http://uaccess.arizona.edu/)
<http://uaccess.arizona.edu/>

Student Resources

University Information Technology Services

University Information Technology Services (UITS) offers many services besides their 24/7 IT support center available by phone (520) 626-8324 or online at <http://uits.arizona.edu/departments/the247>.

Students have access to numerous free training resources to help you learn. To access UA tutorials visit <https://softwarelicense.arizona.edu/training> and log in using your NetID and password.

Software

University of Arizona's students are able to download one copy of the current version of Microsoft Office (for a PC or Mac) and one copy of Microsoft Windows upgrade (for PC or Mac) at no charge. Students are also eligible to download new product release and upgrades when they become available. Visit <http://uabookstore.arizona.edu/technology/campuslicensing/default.asp> and log in using a NetID and password for access.

Cybersecurity students have access to additional free or deeply discounted software products through the MicroAge Lab, Department of MIS, Eller College, and UA. Visit <https://www.microagelab.arizona.edu/software-licensing> and review the information provided.

Career Services

Career Services offers a variety of services to all University of Arizona students. Visit the career services website, <http://www.career.arizona.edu/student>, to learn all the services the department offers.

Handshake –

Handshake is the University of Arizona's official job board with employers recruiting UA students and alumni. Information such as career fairs, workshops, and other career events can also be found on Handshake. Every current, degree-seeking UA student and recent graduate from within the past years has an account on Handshake ready and waiting. To learn more and how to sign in, visit <https://career.arizona.edu/jobs/handshake>.

All students seeking employment may have their resume reviewed by the MIS Department's Career Management team. Contact your program coordinator to discuss your resume and schedule an appointment.

Academic Standing

Academic Integrity

Integrity is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own.

Academic Dishonesty occurs whenever any action or attempted action is pursued that creates an unfair academic advantage or disadvantage for students and/or any member or members of the academic community. All forms of academic dishonesty are subject to sanctions under the Code of Academic Integrity. Sanctions include: written warning, reduction in grade for work involved, disciplinary probation, loss of credit for work involved, failing grade in the course, suspension, and/or expulsion. Various forms of academic dishonesty include, but are not limited to cheating, fabrication, facilitating academic dishonesty, and/or plagiarism.

Academic Misconduct is defined as any behavior not conforming to prevailing standards or rules within the academic community. All forms of academic misconduct are subject to sanctions under the Code of Conduct. Sanctions include: restricted access to University property, administrative hold, warning, probation, suspension, and/or expulsion. Various forms of academic misconduct include, but are not limited to disruptive behavior, threatening behavior, and/or the theft or damage of University property. For additional requirements and further information, please refer to the complete text of the Code of Academic Integrity (<http://deanofstudents.arizona.edu/policies-codes>) available from the Dean of Students (<http://deanofstudents.arizona.edu/>) office.

For more specific examples of academic dishonesty, academic misconduct, and how to avoid such behavior, please visit the following website:

<http://deanofstudents.arizona.edu/tipsforavoidingacademicdishonesty>

Minimum Grade Standard

Only regular grades (A, B, C, D, E) are included in the calculation of the UA grade-point-average. Grade points are assigned to each regular grade as follows:

Grade:	Grade points:
A	4 points
B	3 points
C	2 points
D	1 point
E	0 points

Students must maintain a cumulative grade point average (CGPA) of 3.0 (based on a 4.0 scale) to remain in good standing in all graduate programs. A letter grade of “D” is NOT a passing grade at the graduate level. For a course to be used to satisfy the degree requirement, a grade of “C” or higher is required. The Grade Replacement Option (GRO) cannot be used for graduate courses.

Students must have a 3.0 CGPA or higher to graduate. The department highly recommends that students track their progress using the course tracking worksheet provided in Appendix A.

A student cannot receive a graduate degree unless he or she has achieved a CGPA of 3.00 or higher on all course work taken for graduate credit, whether or not the courses are offered in satisfaction of the specific requirements for a specific graduate degree.

TIP

Graduate students are **NOT** eligible for grade replacement.

Students who fail to maintain a minimum CGPA of 3.0 will be placed on academic probation.

Academic Probation

Students who have a CGPA of less than a 3.0 at the end of a given traditional 16-week semester will be placed on academic probation and will receive notice of probation, via email, from the Graduate College. Within two (2) weeks of receipt of academic probation notice, students are required to meet with the Cybersecurity coordinator to discuss options.

TIP

MUST keep a 3.0 GPA throughout program to graduate.

A student whose CGPA is below 3.0 for two consecutive semesters will be disqualified and will be removed from the program.

<https://grad.arizona.edu/policies/academic-policies/academic-probation>

If your CGPA falls below 3.0 for two consecutive semesters, please contact the Cybersecurity coordinator to find out what your options are for re-entering the program.

More at <http://catalog.arizona.edu/policy/grades-and-grading-system>

Time to Completion Limitations

All requirements for the master's degree must be completed within 6 years of start to ensure currency of knowledge. Time-to-degree begins with the earliest course to be applied toward the degree, including credits transferred from other institutions. Work more than 6 years old is not accepted toward degree requirements.

Master's students who take a break in their studies or whose time to degree exceeds 6 years should check with the Graduate College Degree Certification Office to determine their options.

Continuous Enrollment and Staying Active in the Program

A student admitted to the master's program must register and take a minimum of 1 graduate units every spring and fall, from original matriculation until all course requirements are met.

Students who are unable to meet the above continuous enrollment status may consider completing a "Graduate Student Leave of Absence" form.

The Graduate Student Leave of Absence form may be approved for one semester or 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 to completion limitations noted above (6 years for master's and 4 years for certificates.)

Graduate students who do not return at the end of the approved leave or students who do not enroll for a semester without being granted official leave of absence will be considered to be making unsatisfactory academic progress toward degree completion and will be discontinued from their program. A new application will be necessary for the student to continue in the program. Use of University facilities is suspended while on leave. The time allotted toward your degree is not extended when you are on a leave of absence.

Note: The enrollment status of a student on a Graduate Student Leave of Absence will be reported to lenders and loan servicing entities as 'not attending'. If you have a student loan, you are advised to contact your lender for information about your rights and responsibilities regarding repayment.

The Graduate Student Leave of Absence form can be completed via GradPath within UAccess. <https://grad.arizona.edu/policies/enrollment-policies/leave-absence>

Withdrawing from the University

A student who elects to withdraw from the University by dropping all classes after having paid registration fees must initiate such a procedure through the Registrar's website. (<http://www.registrar.arizona.edu/students>)

TIP

Take at least one (1) course every spring and fall to stay active in the program.

On financial aid? You may have to take more credits per semester to keep your financial aid active. Please contact UA's Financial Aid office for details.

A withdrawal may not be initiated after the last day of classes of any semester, and must be completed before the beginning of the final examination period.

Transfer of Credits

Possible transfer credits from other accredited institutions are limited to the Master's in Cybersecurity degree program.

No more than six credits can be transferred into the master's program.

Transfer of credit will not be made unless

- The grade earned was A or B
- It was awarded by the institution where the work was completed
- It is less than six years from completion
- Transfer was awarded graduate credit

Grades of transfer work will not be used in computing the student's grade-point average. Credit for correspondence courses or extension work from other institutions will not be accepted for graduate credit.

Steps to transfer credits

1. Students who wish to transfer credits must submit an 'Evaluation of Transfer Credit' online form before the end of their first year of study. The online form is found in the students' GradPath module in UAccess.
2. UA's Graduate College will review the students request and notify student of their findings.
3. Student should contact their Program Advisor/Coordinator to alert them that the credits have been reviewed by the Graduate College.
4. The Program Advisor/Coordinator will review the Graduate College recommendations and notify the student of the transfer results.

Course Requirements

The chart below lists which courses are needed to complete a Master's in Cybersecurity. Master students must complete eleven (11) classes, comprised of four (4) common core classes and seven (7) courses of their selected track. Courses from either track can fulfill elective requirements within both tracks. Each course is three (3) credits.

Master's in Cybersecurity Courses			
Course Number	Course Title	Information Systems Track	Physical Systems Track
MIS 515*	Information Security in Public and Private Sectors	Common Core	Common Core
MIS 543*	Business Data Communications and networking	Common Core	Common Core
SIE 571*	Systems Cyber Security Engineering	Common Core	Common Core
SIE 573*	Engineering of Trustworthy Secure Systems	Common Core	Common Core
MIS 516*	Information Security Risk Management	Core	Elective
MIS 517*	Systems Security Management	Core	Elective
MIS 545*	Data Mining for Business Intelligence	Core	Elective
MIS 562*	Cyber Threat Intelligence	Core	Elective
MIS 566*	Penetration Testing: Ethical Hacking and Social Engineering	Core	Elective
MIS 689	Cyber Warfare Capstone	Core	Unavailable
MIS 511	Social and Ethical Issues of the Internet	Elective	Elective
MIS 514	IT Audit	Elective	Elective
MIS 578	Project Management	Elective	Elective
ECE 509**	Cyber Security: Concepts, Theory, Practice	Elective	Elective
ECE 523**	Machine Learning and Data Analytics	Elective	Elective
ECE 524**	Fundamentals of Cloud Security	Elective	Elective
SIE 530**	Engineering Statistics	Elective	Elective
ECE 535A**	Digital Communications Systems	Elective	Elective
SIE 554A**	Systems Engineering Process	Elective	Elective
ECE 571**	Fundamentals of Information and Network Security	Elective	Elective

* MIS 515, MIS 543, SIE 571, SIE 573, MIS 516, MIS 517, MIS 545, MIS 562, MIS 566 are pre-requisites for MIS 689

** Physical Systems Track electives are 16 weeks long and follow the UA's traditional fall and spring semester calendar

A Master's in Cybersecurity Information Systems (IS) track student must complete all four (4) common core courses, all six (6) core classes, and one (1) elective in either the IS or PS tracks.

A Master's in Cybersecurity Physical Systems (PS) track student must complete all four (4) common core courses and seven (7) elective courses in either the IS or PS tracks.

Please refer to the Cybersecurity website to review course descriptions and to view the current course calendar. <https://cybersecurity.arizona.edu/program/>

Financial Aid

Financial aid may be available to master's students. Since financial aid is complex and every student's needs vary – the departments highly recommends that students contact UA's financial aid office for exact details. (520) 621-1858 or online at <http://financialaid.arizona.edu/graduate-students>

Below are general instructions and guidelines.

All graduate students must file the Free Application for Federal Student Aid (FAFSA) to be eligible for need-based grants, loans, scholarships, and Federal Work-Study programs. The form is available online at <http://www.fafsa.ed.gov/>. It is recommended that graduate students complete the FAFSA by March 1 to receive priority processing.

Eligibility:

- Admitted as degree seeking graduate student at the University of Arizona
- Be a U.S. Citizen or Permanent Resident
- The minimum number of units required to receive aid is 5 units for EACH TERM that aid will be disbursed (fall, spring, and summer)
- Maintain satisfactory academic standing (CGPA \geq 3.0)

Course Information

Class Order

Master's students have the option to register for whichever class they choose in whatever order they wish. The ONLY exceptions to this are the courses that have pre-requisites. A pre-requisite knowledge or course must be taken first before the "main" course is taken. Please refer to the chart below to view a list of courses that have pre-requisites.

Students can register for one or two classes each mini-semester. The average study time per course is between 10 to 25 hours per week. However, your technical skill level could influence the amount of time you may need to spend on some classes.

Courses That Have Pre-requisites	
“Main” course	Pre-requisite needed before taking the “main” course
ECE 523 Machine Learning and Data Analytics	Probability/Statistics
ECE 571 Fundamentals of Information and Network Security	Probability/Statistics
MIS 543 Business Data Communications and Networking	Python
MIS 562 Cyber Threat Intelligence	MIS 545 and Python
MIS 566 Penetration Testing	Python
MIS 689 Cyber Warfare Capstone	MIS 515, MIS 543, SIE 571, SIE 573, MIS 516, MIS 517, MIS 545, MIS 562, MIS 566 and Python
SIE 530 Engineering Statistics	Probability/Statistics
SIE 571 Systems Cyber Security Engineering	Python

Students should check the Cybersecurity course calendar to verify which class is being offered before they register.

<https://cybersecurity.arizona.edu/program/#calendar>

In addition, we suggest using the Course Tracking Worksheet (Appendix A) to track the courses you take, help you complete the Plan of Study for graduation and ensure

1. You are within the program completion time limitations
2. Pre-requisites are taken before main course
3. 3.0 CGPA is intact

Textbooks

Some classes will require a textbook and some will not.

Cost of textbooks is **not** included in the course fees. It does not matter where you purchase your textbooks, (as hardcopy or eBook) however a good place to start is [The University of Arizona Bookstore](https://shop.arizona.edu/textbooks/default.asp) (<https://shop.arizona.edu/textbooks/default.asp>) for buying of textbooks or you can also [rent](#) textbooks.

TIP

Use the [Course Tracking Worksheet](#) (Appendix A) to track your course progress including that

1. You are within the program time limit
2. Your pre-requisite courses are taken before main courses
3. Your 3.0 CGPA is intact

Dates and Deadlines

The Registrar determines important dates and deadlines based on the length of the term. These important dates and deadlines include first and last day of class, in addition to the last day to use UAccess for adding, dropping and changing classes.

To view [Graduate Dates and Deadlines](#) visit the Office of the Registrar. Make sure you select the correct term in the drop down. For example:

Standard Class Dates

Calendar
Standard Class Dates

Term
Fall 2022

Career
Graduate

Session
Fall 8 Week 1st

SUBMIT

Registering for a Class

All Master level students register themselves via UAccess. Students may take additional course work from other departments on campus however, they may require special approval. It is up to each student to investigate the requirements to register for graduate level courses if outside the Cybersecurity program.

Steps to register

1. Got to <http://uaccess.arizona.edu/> and click on Student Center, using your NetID and password to sign in.
2. Navigate to the Enrollment menu and select Add/Drop/Swap Classes.
3. Select your desired term
4. Scroll down to the bottom of the page to access the search bars, that will help narrow down your search
 - a. Select appropriate subject (MIS, SIE or ECE) in the Subject dropdown
 - b. Type in the Catalog Number (for example 566),
 - c. Confirm the appropriate Campus, "UA Online" has auto filled and click find
5. When you identify the course you would like to enroll in, making sure the section number is either 203 or 204 for MIS and SIE courses and 201 or 202 for ECE courses, press the red "Select" button
6. Click the "Done" red button. This will add the course to your shopping cart.

7. Repeat steps 4 through 6 for each course you wish to enroll in.
8. After all the courses you wish to enroll in are added, click on the blue “Select” button of each class you want to enroll in
9. Then click the red “Enroll” button in the bottom right hand corner of your Shopping Cart.
 - a. You will only be enrolled in the courses you selected in step 8.

To view a video tutorial, please visit [Searching for Classes Video Tutorial](#) and [Add and Enroll in Classes Video Tutorial](#).

Dropping a Class

Because of the accelerated timeframe of the 8-week Cybersecurity courses, the last day to drop a class for a refund is Sunday of the first week of the class. For additional information regarding refund policy, visit <https://bursar.arizona.edu/dates/refund>.

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. For 8-week classes make sure you are looking at the 8 Week 1 or 8 Week 2 information.

Students can use UAccess Student Center to drop a course, if they do so by the deadline determined by the Registrar.

Steps to drop a course

1. Go to <http://uaccess.arizona.edu/> and click on Student Center, using your NetID and password to sign in.
2. Navigate to the Enrollment menu and select Add/Drop/Swap Classes.
3. Select your desired term
4. Select the “Drop” option under the course you wish to drop.
 - a. You will receive a confirmation popup asking you to confirm or cancel your decision. Select “Confirm” to complete the drop.
 - b. The class is now dropped and should no longer show up in your schedule.

To view a video tutorial, please visit [Drop, Swap and Edit Classes Video Tutorial](#).

Note: Caution should be used before dropping a class as that course may not be available again for another year, which may delay the completion of your program.

Class Cost

The cost of each three-credit graduate course is \$3,996. This amount does not include additional UA Bursar fees or textbook costs that may be required.

Please visit the Bursar’s Office, <http://bursar.arizona.edu/students/fees>, for additional information regarding tuition and fees.

Class Survey

We are always looking to improve the Cybersecurity program and welcome and appreciate students' feedback. Near the end of each course a survey will be emailed to you. We value your input, so please complete the survey.

Graduation Requirements

Students must have a 3.0 CGPA or higher in order to graduate. If a 3.0 CGPA is not attained, students will be required to take additional courses, outside of the Cybersecurity program, and therefore extend their program timeline to bring their cumulative grade point average up to this standard.

Students must complete 33 credits – 11 courses within the Cybersecurity program to graduate.

The chart below will outline the requirements for graduation.

Requirements for Graduation	
Complete the required credit hours of course work as prescribed by the program above	Yes
Maintain an overall CGPA of 3.0 or higher	Yes
Complete a Plan of Study	Yes
Complete a Master's Completion of Degree Requirements form	Yes

Plan of Study

The Plan of Study identifies

- (1) Courses the student intends to transfer from other institutions;
- (2) Courses already completed at The University of Arizona which the student intends to apply toward the graduate degree; and
- (3) Additional course work to be completed to fulfill degree requirements.

Master's students must complete their Plan of Study when they have 4 courses remaining or earlier.

The Plan of Study is completed online through the GradPath module in UAccess. There is a Plan of Study fee of \$35 <https://grad.arizona.edu/gsas/degree-requirements/candidacy-fees>.

Please use Dr. Sue Brown as your Graduate Faculty Advisor, when completing the Plan of Study.

TIP

Both the "Plan of Study" and the "Master's Completion of Degree Requirements" forms are completed online in the University's GradPath/UAccess module.

Master's Completion of Degree Requirements

The Master's Completion of Degree Requirements form is completed online by the student using the GradPath module in UAccess. The form must be completed by the end of your last class. The form will require you to identify "completion of degree committee members." Please use the Graduate Advisor's name for this purpose.

Degree Awarded

The degree awarded is the Master's in Cybersecurity. The degree will be awarded with the traditional University diploma. It will not reflect that the degree was earned online. For example, the diploma reads:

Master's in Cybersecurity
University of Arizona

Diplomas will be awarded at the end of spring, fall, and summer semesters.

Graduation and Walking

Students are encouraged to participate in the University's and the departmental (MIS, ECE, or SIE) graduation ceremonies. The University-wide commencement ceremony will occur at the conclusion of spring semester. Winter and summer graduates may choose to walk in the University commencement the semester prior or the semester after their official graduation. The Eller College of Management and the MIS department will hold two graduation ceremonies a year in spring and in fall. The College of Engineering will hold a graduation ceremony in fall, and the ECE department and SIE department will hold their graduate ceremony in spring. Contact the Program Advisor/Coordinator for more details.

Contact

We will be mailing (via postal mail) documents throughout your Cybersecurity academic career.

We will mail the documents to the "preferred" address you have listed in UAccess so kindly make sure this information is kept up to date.



Director, MIS Online Programs is

Bryn Pallette
520.621.0193

Email: brynf@email.arizona.edu

Appendix A Course Tracking Worksheet

Cybersecurity Course	Semester Taken	Letter Grade	Course GPA Points
MIS 515 – Info Security in Public & Private			
MIS 543 – Business Data Communications & Networking			
SIE 571 – Systems Cyber Security Engineering			
SIE 573 – Engineering of Trustworthy Secure Systems			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
IS Track Required / PS Track Elective			
Elective IS or PS Track			
TOTAL GPA for all courses			
Divided by number of courses completed			
Cumulative GPA			

Conversion Table:
A = 4 points
B = 3 points
C = 2 points
D = 1 point
E = 0 points

How to calculate:

- Step 1:* In the table above write the session and grade earned for each class you have completed.
- Step 2:* Using the conversion table, convert your letter grade into your GPA points.
- Step 3:* Add all your completed course grade points together.
- Step 4:* Divide the total GPA by the number of courses you have completed. The result is your cumulative GPA

Appendix B Important Links

- 1) **How to navigate GradPath-**
 - a. <https://grad.arizona.edu/new-and-current-students/faq#question-2165>
- 2) **UA Alert-**
 - a. <https://cirt.arizona.edu/ualert>
- 3) **Graduate College-**
 - a. <https://grad.arizona.edu/>
- 4) **Degree Requirements-**
 - a. <https://grad.arizona.edu/gsas/degree-requirements>
- 5) **Catalog-**
 - a. <https://catalog.arizona.edu/>
- 6) **Scholarship Universe**
 - a. <https://financialaid.arizona.edu/scholarshipuniverse>
- 7) **Grad Center**
 - a. <https://gradcenter.arizona.edu/>
- 8) **Office of Diversity and Inclusion**
 - a. <https://grad.arizona.edu/diversityprograms/>
- 9) **Campus Health**
 - a. <https://health.arizona.edu/>
- 10) **Disability Resource Center**
 - a. <https://drc.arizona.edu/>
- 11) **Dean of Students**
 - a. <https://deanofstudents.arizona.edu/>
- 12) **Thrive Center Cultural Learning Communities**
 - a. <https://thrive.arizona.edu/CLC>
- 13) **Counseling & Psych Services**
 - a. <https://health.arizona.edu/counseling-psych-services>
- 14) **SOS – Support Outreach and Success (Any Question – Just Ask)**
 - a. <https://sos.arizona.edu/>