CYBERSECURITY ANALYTICS AND OPERATIONS

Integrated Undergrad-Grad Programs

Integrated B.S. in Cybersecurity Analytics and operations and M.S. in Cybersecurity Analytics and Operations

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Cybersecurity Analytics and Operations with the M.S. in Cybersecurity Analytics and Operations offered at the following campuses:

Undergraduate Degree

- Abington
- Altoona
- Beaver
- Berks
- Brandywine
- Greater Allegheny
- Harrisburg
- Lehigh Valley
- Schuylkill
- Shenango
- University Park
- World Campus
- York

Graduate Degree

- University Park

The graduate portion of this IUG is currently offered as face-to-face residential instruction. While the undergraduate curriculum for this IUG may be completed at multiple campuses, the ease and feasibility of completing the integrated program may be heavily dependent upon the location of the graduate instruction. Please discuss the feasibility of completing the IUG with a representative for the graduate program before beginning the application process.

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/).

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

The first two to three years of undergraduate course work follow the same undergraduate curriculum that other students follow in the Cybersecurity Analytics and Operations major. Cybersecurity Analytics and Operations undergraduates may apply for admission to the IUG program no earlier than February 15th of their second undergraduate year and no later than February 15 of their third undergraduate year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in a College of IST undergraduate degree program.
2. Must have completed entrance to their undergraduate major and must have completed 60 credits of an IST undergraduate degree program. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG.
3. Must apply to the IUG program by February 15 of their third undergraduate year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in Cybersecurity Analytics and Operations. Students must complete the Graduate School application (http://www.gradschool.psu.edu/apply/). Admission requirements for the M.S. in Cybersecurity Analytics and Operations are listed on the Admissions Requirements tab.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate course work and a minimum GPA of 3.5 in all course work completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members.
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

Degree Requirements

Students must fulfill all degree requirements for each degree to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Cybersecurity Analytics and Operations are listed in the Undergraduate Bulletin (http://bulletins.psu.edu/undergraduate/). Students must sequence their courses, so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement. If students accepted into the IUG program are unable to complete the M.S. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted credits must be at the 500 or 800 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students may choose 12 credits to double-count for both the undergraduate and graduate degrees from the following:

Code	Title	Credits
Courses Eligible to Double Count for Both Degrees		
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3

IST 504	Foundations of Theories and Methods of Information Sciences and Technology Research	3
IST 554	Network Management and Security	3
IST 815	Foundations of Information Security and Assurance	3
IST 820	Cybersecurity Analytics	3

Integrated B.S. in Cybersecurity Analytics and operations and M.P.S. in Cybersecurity Analytics and Operations

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Cybersecurity Analytics and Operations with the M.S. in Cybersecurity Analytics and Operations offered at the following campuses:

Undergraduate Degree

- Abington
- Altoona
- Beaver
- Berks
- Brandywine
- Greater Allegheny
- Harrisburg
- Lehigh Valley
- Schuylkill
- Shenango
- University Park
- World Campus
- York

Graduate Degree

- World Campus

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/).

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

The first two to three years of undergraduate course work follow the same undergraduate curriculum that other students follow in the Cybersecurity Analytics and Operations major. Cybersecurity Analytics and Operations undergraduates may apply for admission to the IUG program as early as the end of their second undergraduate year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in a College of IST undergraduate degree program.
2. Must have completed entrance to their undergraduate major and must have completed 60 credits of an IST undergraduate degree program. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG.
3. Must apply to and be accepted without reservation into the Graduate School and M.P.S. program in Cybersecurity Analytics and Operations. Students must complete the Graduate School application (http://www.gradschool.psu.edu/apply/). Admission requirements for the M.P.S. in Cybersecurity Analytics and Operations are listed on the Admissions Requirements tab.
4. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate course work and a minimum GPA of 3.5 in all course work completed for the major.
5. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
6. Must present two letters of recommendation from faculty members.
7. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

Degree Requirements

Students must fulfill all degree requirements for each degree to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Cybersecurity Analytics and Operations are listed in the Undergraduate Bulletin (http://bulletins.psu.edu/undergraduate/). Students must sequence their courses, so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement. If students accepted into the IUG program are unable to complete the M.S. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted credits must be at the 500 or 800 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students may choose12 credits to double-count for both the undergraduate and graduate degrees from the following:

Code	Title	Credits
Courses Eligible to Double Count for Both Degrees		
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 554	Network Management and Security	3
IST 815	Foundations of Information Security and Assurance	3
IST 820	Cybersecurity Analytics	3

Integrated B.S. in Enterprise Technology Integration and M.S. in Cybersecurity Analytics and Operations

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Enterprise Technology Integration with the M.S.

in Cybersecurity Analytics and Operations offered at the following campuses:

Undergraduate Degree

- Harrisburg
- University Park
- World Campus

Graduate Degree

- University Park

The graduate portion of this IUG is currently offered as face-to-face residential instruction. While the undergraduate curriculum for this IUG may be completed at multiple campuses, the ease and feasibility of completing the integrated program may be heavily dependent upon the location of the graduate instruction. Please discuss the feasibility of completing the IUG with a representative for the graduate program before beginning the application process.

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/).

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

 The first two to three years of undergraduate course work follow the same undergraduate curriculum that other students follow in the Enterprise Technology Integration major. Enterprise Technology Integration undergraduates may apply for admission to the IUG program no earlier than February 15th of their second undergraduate year and no later than February 15 of their third undergraduate year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in a College of IST undergraduate degree program.

2. Must have completed entrance to their undergraduate major and must have completed 60 credits of an IST undergraduate degree program. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG.

3. Must apply to the IUG program by February 15 of their third undergraduate year.

4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in Cybersecurity Analytics and Operations. Students must complete the Graduate School application (http://www.gradschool.psu.edu/apply/). Admission requirements for the M.S. in Cybersecurity Analytics and Operations are listed on the Admissions Requirements tab.

5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate course work and a minimum GPA of 3.5 in all course work completed for the major.

6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.

7. Must present two letters of recommendation from faculty members.

8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

Students must fulfill all degree requirements for each degree to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Enterprise Technology Integration are listed in the Undergraduate Bulletin (http://bulletins.psu.edu/undergraduate/). Students must sequence their courses, so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement. If students accepted into the IUG program are unable to complete the M.S. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted credits must be at the 500 or 800 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students may choose 12 credits to double-count for both the undergraduate and graduate degrees from the following:

Code	Title	Credits
Courses Eligible to Double Count for Both Degrees		
ETI 435	Enterprise Analytics	3
ETI 461	Database Management and Administration	3
ETI 463	Distributed Database Management Systems	3
IST 402	Emerging Issues and Technologies	3
IST 423	Enterprise Information Management and Storage Architecture	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 504	Foundations of Theories and Methods of Information Sciences and Technology Research	3
IST 505	Foundations of Research Design in Information Sciences and Technology	3
IST 543	Foundations of Software Security	3
IST 815	Foundations of Information Security and Assurance	3

Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Human-Centered Design and Development with the M.S. in Cybersecurity Analytics and Operations offered at the following campuses:

Undergraduate Degree

- Harrisburg
- University Park

Graduate Degree

- University Park

The graduate portion of this IUG is currently offered as face-to-face residential instruction. While the undergraduate curriculum for this IUG may be completed at multiple campuses, the ease and feasibility of completing the integrated program may be heavily dependent upon the location of the graduate instruction. Please discuss the feasibility of completing the IUG with a representative for the graduate program before beginning the application process.

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/).

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

 The first two to three years of undergraduate course work follow the same undergraduate curriculum that other students follow in the Enterprise Technology Integration major. Enterprise Technology Integration undergraduates may apply for admission to the IUG program no earlier than February 15th of their second undergraduate year and no later than February 15 of their third undergraduate year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in a College of IST undergraduate degree program.
2. Must have completed entrance to their undergraduate major and must have completed 60 credits of an IST undergraduate degree program. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG.
3. Must apply to the IUG program by February 15 of their third undergraduate year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in Cybersecurity Analytics and Operations. Students must complete the Graduate School application (http://www.gradschool.psu.edu/apply/). Admission requirements for the M.S. in Cybersecurity Analytics and Operations are listed on the Admissions Requirements tab.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate course work and a minimum GPA of 3.5 in all course work completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members.
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

Students must fulfill all degree requirements for each degree to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Human-Centered Design and Development are listed in the Undergraduate Bulletin (http://bulletins.psu.edu/undergraduate/). Students must sequence their courses, so all undergraduate degree requirements are

fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement. If students accepted into the IUG program are unable to complete the M.S. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted credits must be at the 500 or 800 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students may choose 12 credits to double-count for both the undergraduate and graduate degrees from the following:

Code	Title	Credits
Courses Eligible to Double Count for Both Degrees		
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3
IST 504	Foundations of Theories and Methods of Information Sciences and Technology Research	3
IST 543	Foundations of Software Security	3
IST 815	Foundations of Information Security and Assurance	3
IST 820	Cybersecurity Analytics	3