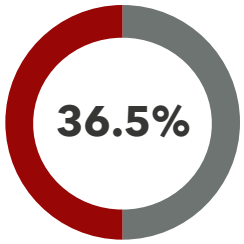
University of CINCINNATI | ARTS AND SCIENCES

Bachelor's of Interdisciplinary Studies

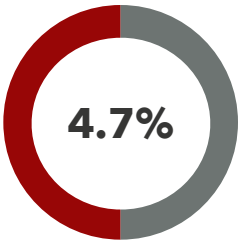
CYBER STUDIES

"Effective (cybersecurity) risk management requires agency heads to lead integrated teams of senior executives with expertise in IT, security, budgeting, acquisition, law, privacy, and human resources...the United States seeks to support the growth and sustainment of a workforce that is skilled in cybersecurity and related fields as the foundation for achieving our objectives in cyberspace."

Presidential Executive Order on Cybersecurity. May, 2017



INCREASE BY 2020
Growth of Cybersecurity



INCREASE BY 2018
Information Security Global Spending

BILLION PER YEAR
Cost of Cyber Attacks on Businesses

The UC College of Arts and Sciences Bachelor's of Interdisciplinary Studies in Cyber Studies responds to three essential needs cited not only by the President, but consistently in the National Initiative in Cyber Education (NICE), the National Science Foundation cyber-related RFPs, the National Institute of Standards and Technology's Cybersecurity Framework, among other national policy documents:

1. We need real 21st Century security solutions, because cybersecurity is an accelerating and deepening problem.
2. We need more skilled workers, because even if we had solutions, we do not have enough people in the pipeline to work them.
3. We need engaged and informed citizens, because educated cybersecurity citizens are part of the solution; technically uninformed citizens are part of the problem.

Bachelor's of Interdisciplinary Studies

CYBER STUDIES

University of Cincinnati is one of just a handful of institutions designated by the US National Security Agency (NSA) and the US Department of Homeland Security (DHS) as a **National Center of Academic Excellence in BOTH Cyber Defense Education (CAE-CDE) AND Cyber Operations (CAE-CO).** Cyber Studies continues the tradition of cyber-related educational programs and research at UC. We also have an ROTC Cyber Leadership Development program.

"I've been saying for the last two decades that we're going to have these vulnerabilities, that they're going to create serious challenges for both business and government."

Dr. Richard Harknett
Head of the Department of Political Science

Multidisciplinary Approach | Four Year Program | Internships

The BIS-Cyber Studies curriculum is designed to allow you to combine technical competency with strong problem-solving skills so that you can take leadership positions across society in the digital age.

After the sophomore year, you will choose a concentration based on your career goals to further your abilities on either the technical or behavioral/policy side of cybersecurity. You will also participate in related internships as part of the four-year curriculum, and completing the degree simultaneously fulfills all Arts and Science College and University General Education requirements.

In class, you will experience simulations that you will have to problem-solve in the context of real-world situations. Whether it's delivering a presidential address on cybersecurity or facing a congressional committee questioning them on policy positions, you will do research on this project for months. By roleplaying as the NSA's director or the secretary of Homeland Security, you are better able to see how real-world conflicts unfold and understand the decisions that must be made. For your capstone, you will design your own cyber attack, and learn how to defend it.

FACULTY

Dr. Richard J. Harknett is US-UK Fulbright Scholar in Cybersecurity, Cyber Studies Programme, University of Oxford, United Kingdom and Professor and Head of the **Department of Political Science** at the University of Cincinnati. He is the author of over fifty publications in the area of international relations theory and international security studies.

He served as scholar-in-residence at US Cyber Command/NSA (2016) and he has provided invited lectures in seven countries and numerous presentations to government agencies, including the US Defense and State Departments and provided briefings to Congressional offices on Capitol Hill. He has testified on cybersecurity to the Ohio State Legislature and served as the Governor's appointee on the State of Ohio's Cybersecurity, Education, and Economic Development Council and contributed to the writing of Ohio's Cybersecurity Strategy. He was selected in 2001 as Fulbright Professor of International Relations at the Diplomatic Academy, Vienna, where he continues to hold a professorial lectureship.

Dr. Mark Stockman is an Associate Professor at the University of Cincinnati serving as a faculty member in the **School of Information Technology** teaching networking, systems, and cybersecurity courses. His current research focusses on investigating the applicability of criminological theories in the digital realm, or cybercrime science. Specifically, his research team Alloy Cybersecurity implements evidence-based, interdisciplinary methods to help organizations identify and mitigate employee behavior that negatively affects the risk of data breach.

As the former Chair of the ACM Special Interest Group for Information Technology Education (SIGITE), an international community that has defined IT as an academic discipline, Prof. Stockman continues to be invited to serve on national committees with ABET and the Computing Sciences Accreditation Board (CSAB) to define accreditation standards for computing-based degree programs the most recent being cybersecurity.

Part One: Core BIS-CYBER Curriculum

	Year 1	Year 2	Year 3	Year 4
Fall	**IT1050** Fundamentals of Information Technology (3 hrs) **IT2030C** Information Security and Assurance (3 hrs) **PHIL1025** Contemporary Moral Issues (3 hrs) **MATH1026** Pre-Calculus (5 hrs)	**IT2035C** Network Infrastructure Mgt. (3 hrs) **IT2040C** Fundamentals of Web Dev. (3 hrs) **POL1001** Power and Politics (3 hrs) **PD2070** Professionalism and Purpose (3 hrs) **COMM2081** Business Communication (3 hrs)	**CYBER CONCENTRATION ELECTIVE** *(3 hrs) **IT2060C** Database Management I (3 hrs) **A&S CORE** Foreign Language (5 hrs) **A&S CORE** Historical Perspectives *(3 hrs)	**CYBER CONCENTRATION ELECTIVE** *(3 hrs) **POL3001C** Quantitative Research and Data Analysis (3 hrs) **CS2021** Python Programming (3 hrs) **CJ4027** Computer Criminology (3 hrs) **A&S CORE** Historical Perspectives *(3 hrs)
Spring	**IT1080C** Computer Networking (3 hrs) **IT1081C** System Administration (3 hrs) **ENGL1001** English Composition (3 hrs) **MATH1071** Introduction to Discrete Mathematics (3 hrs) **FRESHMAN SEMINAR** Choose 1 First Year Experience Freshman Seminar from A&S (3 hrs)	**IT2035C** Network Infrastructure Mgt. (3 hrs) **IT2040C** Fundamentals of Web Dev. (3 hrs) **POL1001** Power and Politics (3 hrs) **PD2070** Professionalism and Purpose (3 hrs) **COMM2081** Business Communication (3 hrs)	**CYBER CONCENTRATION ELECTIVE** *(3 hrs) **IT2020** Implications of Information Technology (3 hrs) **POL2035** Cyber Strategy and Policy (3 hrs) **A&S CORE** Foreign Language (5 hrs) **A&S CORE** Natural Science *(3 hrs)	**2 CYBER CONCENTRATION ELECTIVES** *(3 hrs each/6 hrs total) **POL5035C** Cyberattack Red Team Collaborative Seminar (3 hrs) **PHIL3044 or PHIL3046** Issues of the Information Age/ Metaphysical Foundations of Technology (3 hrs) **A&S CORE** Natural Science *(3 hrs)
Summer		**Cyber Internship** **(1 hr)	**Cyber Internship** **(1 hr)	

* At least 9 credit hours of Cyber Concentration Electives and/or A&S Core must be 3000 level or above.
** Required internships can be paid or unpaid, arranged with the assistance of the UC Division of Professional Practice. PD2070 prepares the student for this process.

Part Two: BIS-CYBER Concentrations

Cyber Studies students must choose either a technical or behavioral cyber concentration. Five courses are required from a single concentration.

Technical Cyber Concentration	Behavioral Cyber Concentration
CS2011 Introduction to Computer Systems **IT3036C** Cloud Computing **IT3072C** Computer and Network Forensics **IT3075C** Network Monitoring and IPS **IT3038C** Scripting Language **IT4076C** Penetration Testing **IT4020** Management in IT **IT4077C** Special Topics in Cybersecurity **EECE4029** Operating Systems & Systems Prog.	**POL2084** US Intelligence & Counterintelligence **POL2088** International Law and Organization **POL2085** Terrorism and Insurgency **POL3091** War and Security **CJ4070** Psychology of Criminal Behavior **CJ4077** Crime Prevention **AF4002** Aerospace Studies

Part Three: A&S Core

In addition to the specified general education courses listed in the curriculum, the A&S Liberal Arts Core additionally requires 6 credit hours of History (HP) with at least 3 credit hours from HIST, and 6 of Natural Science (NS). Listed here are suggested general education courses for Cyber Studies students to meet these requirements:

History	Natural Science
AF2001 Evolution of USAF Air and Space **BIOL1006** Power of Plagues **HIST2051** American Military History **HIST3020** Technologies of the Civil War	**GEOG1009** Natural Hazards **GEOG1044** Intro to Natural Hazards and Disasters **GEOG1040** Earth from Space **BIOL1006** Power of Plagues **PHYS1017** How Things Work **PSYC2030** Sensation and Perception **PSYC2070** Psychobiology

NOTE: This degree is planned for completion by taking 14-17 credit hours each semester with no summer coursework (except two internships); you always have the option of taking more credit hours to accelerate your timetable. If you already have some credits and are looking to transfer into this degree, you can work individually with your advisors to apply appropriate substitutions. Finally, you may choose to take your classes in semesters other than the ones suggested; so long as you complete all of them by the end of your 122 credit hours, you will have met all the requirements.

University of CINCINNATI

READY TO BEGIN?

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