

Carnegie Mellon Institute for Strategy and Technology

Audrey Kurth Cronin, Director, Trustees Professor of Security and Technology
 Location: Posner Hall 385A
www.cmu.edu/cmist (<http://www.cmu.edu/cmist/>)

The Carnegie Mellon Institute for Strategy and Technology (CMIST) (<https://www.cmu.edu/cmist/>) is an interdisciplinary institute that works with units across Carnegie Mellon University (CMU) to tackle the risks and benefits of emerging technologies in war and peace. It is the academic home of the study of Political Science and International Relations at CMU, administratively located within the Dietrich College of Humanities and Social Sciences.

CMIST applies the tools of political science and related social science approaches to the wise development, use, and governance of emerging technologies-- from artificial intelligence to biotechnology and beyond. We are proud of our mission as social scientists, solving pressing problems and helping to ensure that technology serves humanity.

In its focus on Political Science and International Relations, CMIST offers the following undergraduate degree programs and initiatives:

- o BS International Relations and Political Science (primary and additional major);
- o BS Political Science, Security, and Technology (primary and additional major);
- o BS Economics and Politics (primary and additional major);
- o American Politics and Law Minor;
- o Cybersecurity and International Conflict Minor;
- o International Relations and Political Science Minor;
- o Military Strategy and International Relations Minor;
- o Political Science, Security, and Technology Minor;
- o Politics and Public Policy Minor; and
- o The Carnegie Mellon University Washington Semester Program.

Bachelor of Science in International Relations and Political Science

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<http://www.cmu.edu/cmist> (<https://www.cmu.edu/cmist/>)

The Bachelor of Science in International Relations and Political Science (IRPS) is for students who want to learn how to think systematically and develop foundational knowledge about international and domestic politics. It is an interdisciplinary major that is rooted firmly in political science and draws on strengths and insights from decision science, economics, history, modern languages, and other fields. BS IRPS students wrestle with a wide range of issues including the future of democracy, the relationship between technology and politics, the drivers of war and peace, domestic politics across countries, and the formulation of effective foreign policies. IRPS graduates embark on a variety of careers in government, law, public policy, intelligence, national defense, consulting, international development, and more.

Core disciplinary courses for the IRPS major establish a strong foundation in the study of political science and enable students to better understand the workings of political institutions, political behavior across countries, the decision-making of political leaders, the making of national and international policy, and prevailing challenges to the international system, among other topics.

Core methodology courses train IRPS students in the social science tools and communications skills needed to analyze and write persuasively about international relations and politics. Students pursuing an IRPS major learn to use a wide range of analytic tools including statistics and data science, qualitative analysis, game theory, and behavioral decision-making models

as they study politics and strategy. Students also learn how to effectively communicate their analyses to affect public policy.

A rich set of electives allows students to investigate issues in security and technology, grand strategy and national security, cybersecurity and international conflict, military strategy and doctrine, the politics of key regions of the world, international political economy and economic policy, representation and voting rights, climate change and development, repression and human rights, international law and diplomacy, political psychology and public opinion, and social change and revolution.

Recognizing the importance of language and culture in understanding politics and international relations, students are required to complete the intermediate (200) level, or its equivalent, in a modern language other than English. Advanced-level study is strongly encouraged.

Open to all Carnegie Mellon undergraduates, the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>) is an experiential learning program that allows students to study American politics, law, and public policy, while also interning in Washington, DC, for one semester. Courses taken through CMU/WSP count toward the policy seminar core requirement and electives for the IRPS major.

The major in International Relations and Political Science is available as both a primary and additional major. The requirements are the same for both.

Curriculum

A maximum of four courses may double count between the IRPS major and any other majors or minor. Unlimited double counting is permitted with general education requirements.

Disciplinary Core Courses (42-48 units)

Students must complete all of the following disciplinary core courses.

84-104	Decision Processes in American Political Institutions	9
84-110	The Economics of Politics, Policy, and Technology	9
or 73-102	Principles of Microeconomics	
or 73-103	Principles of Macroeconomics	
or 73-104	Principles of Microeconomics Accelerated	
84-226	International Relations	9
84-275	Comparative Politics	9
84-450	Policy Seminar	6-12
or 84-336	Implementing Public Policy: From Good Idea To Reality	
or 84-339	Seminar in Public Policy Research	

Methodology Core Courses (36 units)

Students must complete all of the following methodology core courses.

84-250	Writing for Political Science and Policy	9
84-266	Research Design for Political Science	9
84-369	Decision Science for International Relations	9
36-202	Methods for Statistics & Data Science	9

Language Requirement

Students are required to complete a course at the Intermediate II level or higher of a modern language other than English. Advanced level study is strongly encouraged. Students who successfully pass a language placement exam on campus, at the intermediate II level or higher, are required to take an advanced language course to satisfy the language requirement.

Electives (54 units)

Students must complete 54 units (usually six courses) from the elective lists below. At least four courses (36 units) must be taken from the Carnegie Mellon Institute for Strategy and Technology (84-xxx). Most courses listed below are 9-unit courses, but some are fewer. When students choose courses offered for fewer than 9 units, they must remember that a minimum of 54 units is still required and thus plan to take one or more additional courses to fill out that minimum number. In other words, the key requirement is the number of *units* (54), not the number of *courses*.

CMIST Electives

84-120	Introduction to US Constitutional Law	9
--------	---------------------------------------	---

84-200	Security War Game Simulation	6	79-203	The Other Europe: The Habsburgs, Communism, & Central/Eastern Europe, 1740-1990	9
84-252	Briefing in the Policy World	6	79-205	20th Century Europe	9
84-274	An Introduction to Technology and War	9	79-223	Mexico: From the Aztec Empire to the Drug War	9
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10	79-227	Modern Africa: The Slave Trade to the End of Apartheid	9
84-303	International Human Rights	6	79-229	The Origins of the Palestinian-Israeli Conflict, 1880-1948	9
84-304	In the News: Analysis of Current US National Security Priorities	6	79-230	The Arab-Israeli Conflict and Peace Process Through 1948 to Present	9
84-306	Latin American Politics	9	79-257	Germany and the Second World War	9
84-309	American Political Divides and Great Debates	9	79-262	Modern China: From the Birth of Mao ... to Now	9
84-310	Policy in a Global Economy 1: International Trade and Trade Policy	6	79-264	Tibet and China: History and Propaganda	9
84-311	Policy in a Global Economy 2: International Macroeconomics and Finance	6	79-265	Russian History: Game of Thrones	9
84-312	Terrorism in Sub-Saharan Africa	6	79-266	Russian History and Revolutionary Socialism	9
84-313	International Organizations and Law Taught in Washington, DC, through CMU/WSP	6	79-267	The Soviet Union in World War II: Military, Political, and Social History	9
84-317	Defense PPBE in the Age of Emerging Technologies	6	79-275	Introduction to Global Studies	9
84-318	Politics of Developing Nations	9	79-288	Bananas, Baseball, and Borders: Latin America and the United States	9
84-319	Civil-Military Relations	9	79-301	History of Surveillance: From the Plantation to Data Capitalism	6
84-322	Nonviolent Conflict and Revolution	9	79-302	Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War	9
84-323	War and Peace in the Contemporary Middle East	9	79-313	"Unwanted": Refugees, Asylum Seekers, and Patterns of Global Migration	6
84-324	The Future of Democracy	9	79-314	How Do We Remember? The Politics and Cultures of Memory	9
84-325	Contemporary American Foreign Policy	9	79-318	Sustainable Social Change: History and Practice	9
84-328	Military Strategy and Doctrine	9	79-320	Women, Politics, and Protest	9
84-329	Asian Strategies	6	79-343	Education, Democracy, and Civil Rights	9
84-332	Contemporary US Constitutional Law Issues Taught in Washington, DC, through CMU/WSP	6	79-377	Food, Culture, and Power: A History of Eating	9
84-338	Analysis of US Presidential Powers Taught in Washington, DC, through CMU/WSP	6	79-385	Out of Africa: The Making of the African Diaspora	9
84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9	80-135	Introduction to Political Philosophy	9
84-350	A Strategist's Introduction to Artificial Intelligence	9	80-136	Social Structure, Public Policy & Ethics	9
84-351	Bias, Objectivity, and the Media's Role in Politics	6	80-249	AI, Society, and Humanity	9
84-352	Representation and Voting Rights	9	80-335	Social and Political Philosophy	9
84-354	The American Experiment: Unravelling the US Electoral System	6	80-348	Health, Human Rights, and International Development	9
84-355	Democracy's Data: Analytics and Insights into American Elections	9	80-447	Global Justice	9
84-360	CMU/WSP: Internship Seminar Taught in Washington, DC, through CMU/WSP	24	Advanced Level Modern Language Course Any 300 or 400 level Modern Language Course		
84-362	Diplomacy and Statecraft	9	88-234	Negotiation: International Focus	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9	88-281	Topics in Law: 1st Amendment	9
84-365	The Politics of Fake News and Misinformation	9	88-284	Topics of Law: The Bill of Rights	9
84-367	The Politics of Antisemitism	9	88-411	Rise of the Asian Economies	9
84-370	Nuclear Security & Arms Control	9	NOTE: Some courses have additional prerequisites.		
84-372	Space and National Security	9	Sample four-year plan		
84-373	Emerging Technologies and International Law	9	These sample curricula represent a plan for completing the requirements for the B.S. in International Relations and Political Science. International Relations and Political Science (IRPS) students are encouraged to spend a semester studying and interning in Washington, DC, through the CMU/WSP (http://www.cmu.edu/ips/cmuwsp/), and/or study abroad. The plan below demonstrates that a semester off-campus fits well into the curriculum. As with most majors in Dietrich College, the IRPS major can be completed in as few as two years of undergraduate study, not that it must be. Students may declare the BS in International Relations and Political Science as early as the second semester of the first-year and should consult frequently with the deputy director of academic affairs (see above) about their course of study. Please note that this is only a sample plan of study and not the only possible plan of study. The IRPS major and Dietrich College General Education curricula provide a high degree of flexibility in sequencing and coursework. Double counting between the major and the General Education		
84-380	US Grand Strategy	9			
84-383	Cyber Policy as National Policy	6			
84-386	The Privatization of Force	9			
84-387	Remote Systems and the Cyber Domain in Conflict	9			
84-388	Concepts of War and Cyber War	6			
84-389	Terrorism and Insurgency	9			
84-390	Social Media, Technology, and Conflict	9			
84-393	Legislative Decision Making: US Congress	9			
84-402	Judicial Politics and Behavior	9			
84-405	The Future of Warfare	9			
84-440	Collaborative Research in Political Science	Var.			
Additional Electives					
19-452	EPP Projects II	12			
70-342	Managing Across Cultures	9			
70-365	International Trade and International Law	9			
70-430	International Management	9			
73-332	Political Economy	9			
76-318	Communicating in the Global Marketplace	9			

requirements is unlimited. The plan below shows a very conservative view of double counting.

First-Year		Second-Year	
Fall	Spring	Fall	Spring
84-104 Decision Processes in American Political Institutions	84-110 The Economics of Politics, Policy, and Technology	84-226 International Relations	36-202 Methods for Statistics & Data Science
36-200 Reasoning with Data	84-250 Writing for Political Science and Policy	84-266 Research Design for Political Science	Language Course*
Grand Challenge Seminar	84-275 Comparative Politics	Language Course*	General Education
First-Year Writing	Disciplinary Perspectives: Humanities	General Education	General Education
Language Course*	Language Course*	IRPS Elective	IRPS Elective
99-101 Core@CMU			

*If starting a Modern Language at the Elementary I level, four semesters of language study are required for the IRPS major. AP credit or a language placement exam may allow students to begin at CMU in a level higher than Elementary I and have fewer required semesters of language study.

Third-Year		Fourth-Year	
Fall	Spring	Fall	Spring
84-369 Decision Science for International Relations	CMU/WSP or STUDY ABROAD*	IRPS Elective	84-450 Policy Seminar (if student does not participate in CMU/WSP)
IRPS Elective	Explore	IRPS Elective	IRPS Elective
General Education	Explore	IRPS Elective	General Education
General Education	Explore	General Education	Explore
Explore	Explore	General Education	Explore

*All students are strongly encouraged to participate in the CMU/WSP (<https://www.cmu.edu/cmist/washington-center/>) and/or in a study abroad program. Spring semester of the junior year is a popular semester to study off-campus. However, International Relations and Political Science majors may participate in the CMU/WSP or study abroad in spring of sophomore year, either semester of junior year or senior year. Students should consult the deputy director when planning their curricular program.

**Students who participate in the CMU/WSP (<https://www.cmu.edu/cmist/washington-center/>) will complete the Policy Seminar requirement while studying in Washington, DC. Students who do not participate in the CMU/WSP will take the Policy Seminar in the spring of the senior year in Pittsburgh.

Bachelor of Science in Political Science, Security, and Technology

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<http://www.cmu.edu/cmist> (<https://www.cmu.edu/cmist/>)

The major in Political Science, Security, and Technology takes a social science (not technical) approach to studying emerging technologies that affect war and peace. There is no better place to study security and technology than Carnegie Mellon University, a thought leader in global and national security issues, policies, and strategies related to digital technologies. CMU students are uniquely poised to influence the future, with cutting-edge research happening across campus in all the relevant technological areas--e.g., machine learning, cybersecurity, robotics, big data, neuroscience, human-computer interaction, human enhancement, synthetic biology, and various types of artificial intelligence.

In this course of study, Carnegie Mellon undergraduates learn how to analyze the political, economic, social, and ethical dimensions of new technologies, equipping themselves to contribute to vital political debates and influence technological developments in the public interest.

The lesson of the past few years is that the pace of technological change will only increase, and its impact on the future of humanity will also grow.

In particular, the geopolitical implications of various forms of artificial intelligence are well along, including their impacts on work, health, environmental protection, and especially conflict. The ongoing conflicts in Ukraine, Gaza, Sudan and elsewhere reflect the role of autonomous weapons, loitering munitions, UAVs, voice-cloning tools, and open-source intelligence driven by machine learning tools.

The full effects of these technologies are some years away, but our students must be equipped to shape and adapt to them. Most serious among these effects will be the impacts on war and peace, what it means to be human, patterns of economic prosperity, and the future of global stability.

Students in this major read, employ, and create evidence-based research that addresses and shapes the future of technology in national and international security. In choosing their electives, students have the opportunity to emphasize either the international or domestic American aspects of this topic. Challenges posed by digital technologies affect people of all political parties, in the United States and throughout the world, especially in democracies.

Our goal is to educate students who emerging knowing not only about the risks and benefits of new technologies in historical context, but are also able to frame broad questions and use political science methods, theories, and approaches to address them.

We teach a range of methodologies to prepare our students for the challenges of the 21st century, both within the United States and abroad. These include introductions not only to traditional political science approaches (such as comparative case studies, archival analysis, database construction, and regression analysis), but also to newer tools such as visual geospatial mapping, sensor-driven machine learning, and the employment of large language models.

Our budding political scientists may not personally build new technological tools (as they do in other parts of Carnegie Mellon University); but they'll know how to use them effectively to forecast problems, identify potential backlash, and answer important questions. They'll design research projects that address political, ethical, and strategic questions related to security and technology, in everything from voting in democratic elections to robotic targeting during warfare, in both the United States and abroad.

Political Science, Security, and Technology is available as a primary major and additional major. The requirements are the same for both.

Curriculum

A maximum of four courses may double count between the PSST major and any other majors or minor. Unlimited double counting is permitted with General Education requirements.

Political Science Core (36 units)

Students must complete all of the following core courses.

84-104	Decision Processes in American Political Institutions	9
84-226	International Relations	9
84-250	Writing for Political Science and Policy	9
84-275	Comparative Politics	9

Security and Technology Core (45 Units)

Students must complete:

84-274	An Introduction to Technology and War	9
--------	---------------------------------------	---

Students must complete 36 units from the following list of courses:

84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-383	Cyber Policy as National Policy	6
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-390	Social Media, Technology, and Conflict	9
84-405	The Future of Warfare	9

Methodology Core (18 Units)

Students must complete all of the following courses.

84-266	Research Design for Political Science	9
36-202	Methods for Statistics & Data Science	9

Electives (54 Units)

Students must complete 54 units (usually six courses) in total. At least four courses (36 units) must be taken from the Carnegie Mellon Institute for Strategy and Technology (84-xxx). Most courses listed below are 9-unit courses, but some are fewer. When students choose courses offered for fewer than 9 units, they must remember that a minimum of 54 units is still required and thus plan to take one or more additional courses to fill out that minimum number. In other words, the key requirement is the number of units (54), not the number of courses. Courses taken in the Security and Technology core above and beyond the required number of units for the core may count as electives for the major.

Students are strongly encouraged to participate in the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>) and courses taken through the program may count toward electives for the major.

International Security

84-110	The Economics of Politics, Policy, and Technology	9
84-200	Security War Game Simulation	6
84-304	In the News: Analysis of Current US National Security Priorities	6
84-312	Terrorism in Sub-Saharan Africa	6
84-313	International Organizations and Law	6
84-322	Nonviolent Conflict and Revolution	9
84-323	War and Peace in the Contemporary Middle East	9
84-325	Contemporary American Foreign Policy	9
84-329	Asian Strategies	6
84-336	Implementing Public Policy: From Good Idea To Reality	12
84-339	Seminar in Public Policy Research	12
84-360	CMU/WSP: Internship Seminar	24
84-362	Diplomacy and Statecraft	9
84-365	The Politics of Fake News and Misinformation	9
84-369	Decision Science for International Relations	9
84-386	The Privatization of Force	9
84-389	Terrorism and Insurgency	9
84-440	Collaborative Research in Political Science	Var.

Domestic American Politics

84-120	Introduction to US Constitutional Law	9
84-252	Briefing in the Policy World	6
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-309	American Political Divides and Great Debates	9
84-317	Defense PPBE in the Age of Emerging Technologies	6
84-319	Civil-Military Relations	9
84-324	The Future of Democracy	9
84-325	Contemporary American Foreign Policy	9
84-328	Military Strategy and Doctrine	9
84-332	Contemporary US Constitutional Law Issues	6
84-336	Implementing Public Policy: From Good Idea To Reality	12
84-338	Analysis of US Presidential Powers	6
84-339	Seminar in Public Policy Research	12
84-352	Representation and Voting Rights	9
84-355	Democracy's Data: Analytics and Insights into American Elections	9
84-360	CMU/WSP: Internship Seminar	24
84-365	The Politics of Fake News and Misinformation	9
84-367	The Politics of Antisemitism	9
84-380	US Grand Strategy	9
84-393	Legislative Decision Making: US Congress	9
84-402	Judicial Politics and Behavior	9

Additional Electives in Security and Technology

17-200	Ethics and Policy Issues in Computing	9
17-303	Cryptocurrencies, Blockchains and Applications	9
17-331	Information Security, Privacy, and Policy	12
17-333	Privacy Policy, Law, and Technology	9
17-334	Usable Privacy and Security	9
19-403	Policies of Wireless Systems	12

70-334	Ethics of Emerging Technologies	9
79-234	Technology and Society	9
79-301	History of Surveillance: From the Plantation to Data Capitalism	6
79-302	Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War	9
79-370	Technology in the United States	9
80-249	AI, Society, and Humanity	9
95-444	Cybersecurity Policy and Governance II	12

Bachelor of Science in Economics and Politics

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

Politics and economics are deeply interconnected. Political institutions and decision-making impact economic growth, income distribution, and many other aspects of economic life. Both fiscal and monetary policies affect the economy: but these policies also reflect political considerations and influence political outcomes. For example, while the United Nations is often thought of in purely political terms, the Security Council can and does impose sanctions on countries-- an example of an economic policy used for political change.

The Economics and Politics major is offered jointly between the Carnegie Mellon Institute for Strategy and Technology (<https://www.cmu.edu/cmist/>) (CMIST) and the Undergraduate Economics Program (<https://www.cmu.edu/tepper/programs/undergraduate-economics/>) (UEP). The major will appeal to any student interested in the design, evaluation, and political implementation of economic policy. It will be especially attractive to students considering careers in politics, government agencies, political and business consulting, lobbying, or the law.

The BS in Economics and Politics is an interdisciplinary major. The major will develop the political context and underpinnings of economic policy making. It will explore how political institutions resolve the tradeoffs and disagreements associated with policymaking and how they can facilitate or impede desirable economic outcomes.

CMIST's strengths lie in topics such as emerging technology, national security, and grand strategy. Economic policy is one facet of grand strategy through which governments pursue domestic and international goals. This major will enable students to understand economic statecraft from a broad perspective. It will address key issues such as how multilateral economic institutions such as the IMF and World Bank use economic coercion. Whether coercion is successful or not depends not only on the levers of power but also on variations in regime structures, alongside complex linkages in the international economy. For example, the viability of the "Euro Zone" depends on whether the political-economic agreements necessary to mitigate institutional weaknesses are politically feasible or destined to failure. In short, international economics affects everything from human rights practices to trade patterns to energy markets to tech company investments to global compliance with climate change treaties.

Economics and Politics is available as both a primary and an additional major. The requirements are the same for both.

Curriculum

A maximum of four courses may double count between the Economics and Politics major and any other majors or minor. Unlimited double counting is permitted with general education requirements.

Students must earn a grade of "C" or better in all courses taken in the Department of Economics (73-xxx).

Mathematics (19 units)

Students must complete all of the following courses.

21-120	Differential and Integral Calculus	10
or 21-112	Calculus II	
21-256	Multivariate Analysis	9
or 21-259	Calculus in Three Dimensions	

Economics Core (54 units)

Students must complete all of the following courses.

73-102	Principles of Microeconomics *	9
or 73-104	Principles of Microeconomics Accelerated	
73-103	Principles of Macroeconomics	9
73-230	Intermediate Microeconomics	9
73-240	Intermediate Macroeconomics	9
73-265	Economics and Data Science	9
73-274	Econometrics I	9

***Students who place out of 73-102 based on the economics placement exam will receive a pre-req waiver for 73-102 and are waived from taking 73-102**

CMIST Core (48 units)

Students must complete all of the following courses.

84-104	Decision Processes in American Political Institutions	9
84-226	International Relations	9
84-266	Research Design for Political Science	9
84-275	Comparative Politics	9
84-310	Policy in a Global Economy 1: International Trade and Trade Policy	6
84-311	Policy in a Global Economy 2: International Macroeconomics and Finance	6

Communication (9 units)

Students must complete the following course:

84-250	Writing for Political Science and Policy	9
--------	--	---

Electives (27 units)

Majors are required to take 27 units (usually three courses) from the elective lists below. At least 9 units (typically one course) must be taken from Economics (73-xxx) and at least 9 units (typically one course) must be taken from the Carnegie Mellon Institute for Strategy and Technology (84-xxx). Students may complete electives through coursework in the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>).

Economics Electives

73-328	Health Economics	12
73-332	Political Economy	9
73-338	Financial Crises and Risk	9
73-348	Behavioral Economics	9
73-352	Public Economics	9
73-353	Financial Regulation in the Digital Age	9
73-365	Firms, Market Structures, and Strategy	9
73-421	Emerging Markets	9
73-427	Sustainability, Energy, and Environmental Economics	9

CMIST: Political Science and International Relations Electives

84-120	Introduction to US Constitutional Law	9
84-200	Security War Game Simulation	6
84-252	Briefing in the Policy World	6
84-274	An Introduction to Technology and War	9
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-303	International Human Rights	6
84-304	In the News: Analysis of Current US National Security Priorities	6
84-306	Latin American Politics	9
84-309	American Political Divides and Great Debates	9
84-312	Terrorism in Sub-Saharan Africa	6
84-313	International Organizations and Law	6
84-317	Defense PPBE in the Age of Emerging Technologies	6
84-318	Politics of Developing Nations	9
84-319	Civil-Military Relations	9
84-322	Nonviolent Conflict and Revolution	9
84-323	War and Peace in the Contemporary Middle East	9
84-324	The Future of Democracy	9
84-325	Contemporary American Foreign Policy	9
84-328	Military Strategy and Doctrine	9

84-329	Asian Strategies	6
84-332	Contemporary US Constitutional Law Issues Taught in Washington, DC, through CMU/WSP	6
84-338	Analysis of US Presidential Powers Taught in Washington, DC, through CMU/WSP	6
84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-351	Bias, Objectivity, and the Media's Role in Politics	6
84-352	Representation and Voting Rights	9
84-354	The American Experiment: Unravelling the US Electoral System	6
84-355	Democracy's Data: Analytics and Insights into American Elections	9
84-360	CMU/WSP: Internship Seminar Taught in Washington, DC, through CMU/WSP	24
84-362	Diplomacy and Statecraft	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-365	The Politics of Fake News and Misinformation	9
84-367	The Politics of Antisemitism	9
84-369	Decision Science for International Relations	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-380	US Grand Strategy	9
84-383	Cyber Policy as National Policy	6
84-386	The Privatization of Force	9
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-389	Terrorism and Insurgency	9
84-390	Social Media, Technology, and Conflict	9
84-393	Legislative Decision Making: US Congress	9
84-402	Judicial Politics and Behavior	9
84-405	The Future of Warfare	9
84-440	Collaborative Research in Political Science	Var.

Additional Electives

19-411	Science and Innovation Leadership for the 21st Century: Firms, Nations, and Tech	9
19-425	Sustainable Energy for the Developing World	9
70-365	International Trade and International Law	9
70-430	International Management	9
79-280	Coffee and Capitalism	9
79-318	Sustainable Social Change: History and Practice	9
80-135	Introduction to Political Philosophy	9
80-136	Social Structure, Public Policy & Ethics	9
80-335	Social and Political Philosophy	9
80-348	Health, Human Rights, and International Development	9
80-447	Global Justice	9
88-366	Behavioral Economics of Poverty and Development	9
88-411	Rise of the Asian Economies	9

CAPSTONE (18-30 units)

Students must complete all of the following courses.

84-450	Policy Seminar	6-12
or 84-336	Implementing Public Policy: From Good Idea To Reality	
or 84-339	Seminar in Public Policy Research	
73-497	Senior Project or Senior Honors Thesis in Dietrich or Tepper (18 units total)	12

Note: Students in the BS in Economics and Politics who complete a Dietrich or Tepper Honors Thesis in economics may use 73-497 (Senior Project) as an economics elective.

DOUBLE-COUNTING RESTRICTION

A maximum of four courses may double count with another major or minor.

Sample four-year plan

These sample curricula represent a plan for completing the requirements for the B.S. in Economics and Politics. Economics and Politics students are encouraged to spend a semester studying and interning in Washington, DC, through the CMU/WSP (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>), and/or study abroad. The plan below demonstrates that a semester off-campus fits well into the curriculum. Students may declare the BS in Economics and Politics as early as the second semester of the freshman year and should consult frequently with the Economics and Politics advisors about their course of study. Please note that this is only a sample plan of study and not the only possible plan of study. The Economics and Politics major and Dietrich College General Education curricula provide a high degree of flexibility in sequencing and coursework. Double counting between the major and General Education requirements is unlimited. The plan below shows a very conservative view of double counting.

First-Year		Second-Year	
Fall	Spring	Fall	Spring
21-120 Differential and Integral Calculus	21-256 Multivariate Analysis	73-230 Intermediate Microeconomics	73-240 Intermediate Macroeconomics
36-200 Reasoning with Data	73-103 Principles of Macroeconomics	73-265 Economics and Data Science	73-274 Econometrics I
73-102 Principles of Microeconomics	84-275 Comparative Politics	84-226 International Relations	84-250 Writing for Political Science and Policy
84-104 Decision Processes in American Political Institutions	First-Year Writing	84-266 Research Design for Political Science	84-310 Policy in a Global Economy 1: International Trade and Trade Policy
Grand Challenge Seminar	Disciplinary Perspectives: Humanities	General Education	84-311 Policy in a Global Economy 2: International Macroeconomics and Finance
99-101 Core@CMU			General Education

Third-Year		Fourth-Year	
Fall	Spring	Fall	Spring
General Education	CMU/WSP or Study Abroad	73-497 Senior Project	84-450 Policy Seminar (if student does not participate in CMU/WSP)
General Education	Explore	General Education	General Education
General Education	Explore	Economics & Politics Elective	Explore
General Education	Explore	Economics & Politics Elective	Explore
Economics & Politics Elective	Explore	Explore	Explore

Minor in American Politics and Law

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*

acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*

ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<http://www.cmu.edu/cmist> (<https://www.cmu.edu/cmist/>)

The minor in American Politics and Law is designed to equip students with comprehensive insights into the political and legal landscape of the United States. Our curriculum emphasizes an interdisciplinary approach, blending theoretical knowledge and practical skills. Students have the opportunity to engage with a variety of courses that cover key aspects of American civics, policy development, and legal principles. A core objective of this program is to nurture critical and analytical thinking skills through engagement with primary source materials, real world examples of policy and legal conflicts, and current events and matters of national policy debate. Students are challenged to dissect and debate major policy issues facing the nation, fostering their ability to develop, draft, and articulate informed political analyses and recommendations on complex matters.

Through this minor, students will develop a robust understanding of both the historical and contemporary dynamics of American politics and law. This approach ensures that they not only grasp the fundamentals but also learn to apply this knowledge in real-world scenarios. It provides a gateway to understanding the intricate workings of American governance and law, and a platform for building a career that makes a meaningful impact in

society. The skills and objectives learned in the minor provide students from any discipline with core and foundational knowledge that is particularly useful for students entering law school, as well as other potential future careers in policymaking, politics, non-governmental organizations, political analysis, and legislative affairs, at all levels of government. In addition to those aspiring to careers in the public sector or law, the program is also uniquely tailored for students from diverse academic backgrounds seeking to integrate an understanding of American politics, domestic and international law into other disciplines.

Curriculum (60-63 units)

Students may double count a maximum of two courses with another major or minor. Unlimited double counting is permitted with General Education requirements.

Foundational (18 units):

Students must complete all of the following courses:

84-104	Decision Processes in American Political Institutions	9
84-120	Introduction to US Constitutional Law	9

Communication (6-9 units):

Students must complete one of the following courses:

84-250	Writing for Political Science and Policy	9
84-252	Briefing in the Policy World	6

American Politics (18 units):

Students must complete 18 units from the following list of courses:

84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-304	In the News: Analysis of Current US National Security Priorities	6
84-309	American Political Divides and Great Debates	9
84-319	Civil-Military Relations	9
84-324	The Future of Democracy	9
84-325	Contemporary American Foreign Policy	9
84-328	Military Strategy and Doctrine	9
84-338	Analysis of US Presidential Powers	6
84-351	Bias, Objectivity, and the Media's Role in Politics	6
84-352	Representation and Voting Rights	9
84-354	The American Experiment: Unravelling the US Electoral System	6
84-355	Democracy's Data: Analytics and Insights into American Elections	9
84-365	The Politics of Fake News and Misinformation	9
84-367	The Politics of Antisemitism	9
84-380	US Grand Strategy	9
84-393	Legislative Decision Making: US Congress	9
84-402	Judicial Politics and Behavior	9
79-248	U.S. Constitution & the Presidency	9
79-250	Voting Rights: An Introduction	9

Law (18 units):

Students must complete 18 units from the following list of courses:

84-313	International Organizations and Law	6
84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-332	Contemporary US Constitutional Law Issues	6
84-373	Emerging Technologies and International Law	9
84-402	Judicial Politics and Behavior	9
17-333	Privacy Policy, Law, and Technology	9
66-221	Topics of Law: Introduction to Intellectual Property Law	9
70-364	Business Law	6
73-408	Law and Economics	9
76-219	Law & Blame	9
76-475	Law, Performance, and Identity	9
79-360	Crime, Policing, and the Law: Historical and Contemporary Perspectives	9
88-281	Topics in Law: 1st Amendment	9
88-284	Topics of Law: The Bill of Rights	9

Minor in Cybersecurity and International Conflict

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin (acronin@andrew.cmu.edu)@andrew.cmu.edu
 (acronin@andrew.cmu.edu), Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<https://www.cmu.edu/cmist/>

The minor in cybersecurity and international conflict analyzes the past, present, and future role of cyber conflict and cybersecurity in international politics. Cyber attacks by nation-states and their proxies have the potential to reshape how wars are fought in the twenty-first century. The complexity and policy challenges of cyber-engagements is immense. This minor addresses the role of deterrence, dissuasion, and attribution in cyber conflict, while also studying the nuances of key components of modern warfare—from the security dilemma to escalation management and beyond.

Courses in this minor focus on the existing gaps in our understanding of cybersecurity and international conflict, such as whether cyberspace is offense or defense dominant (or over time fluid between the two), and which factors are important in determining the answer. Other relevant questions include how nation-states, their primary adversaries, and a bevy of nonstate actors engage online and in the virtual and information environments. Accordingly, the minor exposes students to basic technology concepts, methods of attack and defense, potential strategy and goals for cyber-engagement, and response and forensics for cyber-engagements.

Alongside conventional methods of warfare, cybersecurity has rapidly developed into a centerpiece of a state's ability to protect and project power. As the United States and other emerging cyber powers craft and implement doctrine in this domain, there is likely to be a rapid increase in activity, from efforts to disrupt the online activities of global terrorist networks, to cybersecurity offense and defense in the Russia-Ukraine war, to near daily raids on foreign networks designed to cripple states' cyberweapons before they can be deployed. In addition, the impacts of cyberattacks on critical infrastructure, theft of intellectual property, pervasive identity theft, and hacking of sensitive databases have accumulated, gradually wearing down civilian networks and achieving strategic effects over time.

In the shifting landscape of cyber capabilities, how will laws, authorities, and policies keep pace? What are the implications and consequences of actions that may be considered "short of war" by some countries but "above the threshold" of conflict by others? Will a more aggressive defensive posture with respect to cybersecurity inadvertently increase the risk of conflict with states that sponsor malicious hacking groups? What is the proper balance between offense and defense in cybersecurity and how are cyber operations best integrated into a country's overall military strategy?

Unlike some other kinds of tactics, attribution of cyber attacks presents significant challenges. Indeed, in many cases, it can be difficult to quickly determine whether the attacker is a nation-state, a nonstate actor, a criminal gang, or a lone hacktivist. Investigators must combine technical and traditional methods to identify potentially responsible parties and to understand their intent. If the aggressor's identity cannot be quickly confirmed, how can a counterattack be launched? Some attackers may seek to mount "false flag" attacks and deception, for example, that misdirect defenders to counter-attack in the wrong direction.

Additionally, what are appropriate responses to attacks made on civilian infrastructure and private business operations, such as in the areas of financial services, transportation, energy, entertainment, and health care? In other words, what are the appropriate rules of engagement for attacks on national systems, infrastructural systems, businesses, and individuals? When, for example, is a counterattack or a "kinetic" response permissible?

These questions have major implications for the study of war and peace. Those who seek to start a war may be harder to find and their motives more difficult to discern. The cybersecurity and international conflict minor tackles the social-scientific dimensions of cybersecurity with a focus on the implications of the cyber age for modern statecraft, warfare, elections (local, state, and national), and domestic and international politics.

CURRICULUM

60 units

Students are permitted to double count a maximum of two courses between the minor in Cybersecurity and International Conflict and another major or minor. Unlimited double counting is permitted with general education requirements.

Foundational Course

Students must take one of the following foundational courses (9 units):

84-104	Decision Processes in American Political Institutions	9
84-226	International Relations	9
84-275	Comparative Politics	9

Core Courses

Students must take all of the following core courses (24 units):

84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-405	The Future of Warfare	9

Elective Courses

Students must take three courses from the following list of elective courses (27 units). At least one course (9 units) must be taken from the Carnegie Mellon Institute for Strategy and Technology (CMIST) and have an 84-number.

84-200	Security War Game Simulation	6
84-274	An Introduction to Technology and War	9
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-312	Terrorism in Sub-Saharan Africa	6
84-317	Defense PPBE in the Age of Emerging Technologies	6
84-319	Civil-Military Relations	9
84-323	War and Peace in the Contemporary Middle East	9
84-325	Contemporary American Foreign Policy	9
84-328	Military Strategy and Doctrine	9
84-329	Asian Strategies	6
84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-365	The Politics of Fake News and Misinformation	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-380	US Grand Strategy	9
84-383	Cyber Policy as National Policy	6
84-386	The Privatization of Force	9
84-389	Terrorism and Insurgency	9
84-390	Social Media, Technology, and Conflict	9
16-735	Ethics and Robotics	12
17-200	Ethics and Policy Issues in Computing	9
17-303	Cryptocurrencies, Blockchains and Applications	Var.
17-331	Information Security, Privacy, and Policy	12
17-333	Privacy Policy, Law, and Technology	9
17-334	Usable Privacy and Security	9
17-702	Current Topics in Privacy Seminar	3
79-301	History of Surveillance: From the Plantation to Data Capitalism	6
79-302	Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War	9
80-249	AI, Society, and Humanity	9
95-444	Cybersecurity Policy and Governance II	6

Minor in International Relations and Political Science

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<https://www.cmu.edu/cmist/>

The International Relations and Political Science (IRPS) minor is for students who want to learn how to think systematically and develop foundational knowledge about international and domestic politics. It examines international relations, comparative politics, and domestic politics from the discipline of political science. The minor emphasizes the importance of political institutions, decision making by leaders in shaping policy, and contemporary challenges to the international system.

Students wrestle with a wide range of issues including the future of democracy, the relationship between technology and politics, the drivers of war and peace, domestic politics across countries, and the formulation of effective foreign policies. Core courses for the IRPS minor establish a strong foundation in the study of political science and enable students to better understand the workings of political institutions, political behavior across countries, the decision-making of political leaders, the making of national and international policy, and prevailing challenges to the international system, among other topics. A rich set of electives allows students to investigate issues in security and technology, grand strategy and national security, cybersecurity and international conflict, military strategy and doctrine, the politics of key regions of the world, international political economy and economic policy, representation and voting rights, climate change and development, repression and human rights, international law and diplomacy, political psychology and public opinion, and social change and revolution.

Curriculum

63 units

A maximum of two courses may double count between the minor in International Relations and Political Science and another major or minor. Unlimited double counting is permitted with general education requirements.

Core Courses

Students must take all of the following core courses (36 units):

84-104	Decision Processes in American Political Institutions	9
84-226	International Relations	9
84-275	Comparative Politics	9
84-110	The Economics of Politics, Policy, and Technology	9
	or 73-102 Principles of Microeconomics	
	or 73-103 Principles of Macroeconomics	
	or 73-104 Principles of Microeconomics Accelerated	

Electives

Students select three courses (27 units) from the elective lists below. Two courses (18 units) must be taken from the Carnegie Mellon Institute for Strategy and Technology (CMIST) and have an 84-number.

CMIST Electives

84-120	Introduction to US Constitutional Law	9
84-200	Security War Game Simulation	6
84-252	Briefing in the Policy World	6
84-274	An Introduction to Technology and War	9
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-303	International Human Rights	6
84-304	In the News: Analysis of Current US National Security Priorities	6
84-306	Latin American Politics	9
84-309	American Political Divides and Great Debates	9
84-310	Policy in a Global Economy 1: International Trade and Trade Policy	6
84-311	Policy in a Global Economy 2: International Macroeconomics and Finance	6
84-312	Terrorism in Sub-Saharan Africa	6
84-317	Defense PPBE in the Age of Emerging Technologies	6
84-318	Politics of Developing Nations	9
84-319	Civil-Military Relations	9
84-322	Nonviolent Conflict and Revolution	9
84-323	War and Peace in the Contemporary Middle East	9
84-324	The Future of Democracy	9
84-325	Contemporary American Foreign Policy	9
84-328	Military Strategy and Doctrine	9
84-329	Asian Strategies	6

84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-351	Bias, Objectivity, and the Media's Role in Politics	6
84-352	Representation and Voting Rights	9
84-354	The American Experiment: Unravelling the US Electoral System	6
84-355	Democracy's Data: Analytics and Insights into American Elections	9
84-362	Diplomacy and Statecraft	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-365	The Politics of Fake News and Misinformation	9
84-367	The Politics of Antisemitism	9
84-369	Decision Science for International Relations	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-380	US Grand Strategy	9
84-383	Cyber Policy as National Policy	6
84-386	The Privatization of Force	9
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-389	Terrorism and Insurgency	9
84-390	Social Media, Technology, and Conflict	9
84-393	Legislative Decision Making: US Congress	9
84-402	Judicial Politics and Behavior	9
84-405	The Future of Warfare	9
84-440	Collaborative Research in Political Science	Var.

Additional Electives

19-452	EPP Projects II	12
70-342	Managing Across Cultures	9
70-365	International Trade and International Law	9
70-430	International Management	9
73-332	Political Economy	9
76-318	Communicating in the Global Marketplace	9
79-203	The Other Europe: The Habsburgs, Communism, & Central/Eastern Europe, 1740-1990	9
79-205	20th Century Europe	9
79-223	Mexico: From the Aztec Empire to the Drug War	9
79-227	Modern Africa: The Slave Trade to the End of Apartheid	9
79-229	The Origins of the Palestinian-Israeli Conflict, 1880-1948	9
79-230	The Arab-Israeli Conflict and Peace Process Through 1948 to Present	9
79-257	Germany and the Second World War	9
79-262	Modern China: From the Birth of Mao ... to Now	9
79-264	Tibet and China: History and Propaganda	9
79-265	Russian History: Game of Thrones	9
79-266	Russian History and Revolutionary Socialism	9
79-267	The Soviet Union in World War II: Military, Political, and Social History	9
79-275	Introduction to Global Studies	9
79-288	Bananas, Baseball, and Borders: Latin America and the United States	9
79-301	History of Surveillance: From the Plantation to Data Capitalism	6
79-302	Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War	9
79-313	"Unwanted": Refugees, Asylum Seekers, and Patterns of Global Migration	6
79-314	How Do We Remember? The Politics and Cultures of Memory	9
79-318	Sustainable Social Change: History and Practice	9
79-320	Women, Politics, and Protest	9
79-343	Education, Democracy, and Civil Rights	9
79-377	Food, Culture, and Power: A History of Eating	9
79-385	Out of Africa: The Making of the African Diaspora	9

80-135	Introduction to Political Philosophy	9
80-136	Social Structure, Public Policy & Ethics	9
80-249	AI, Society, and Humanity	9
80-335	Social and Political Philosophy	9
80-348	Health, Human Rights, and International Development	9
80-447	Global Justice	9
82-3xx	82-3xx or 4xx Advanced Level Modern Language Class	
88-234	Negotiation: International Focus	9
88-281	Topics in Law: 1st Amendment	9
88-284	Topics of Law: The Bill of Rights	9
88-411	Rise of the Asian Economies	9

Minor in Military Strategy and International Relations

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<https://www.cmu.edu/cmist/>

The minor in Military Strategy and International Relations offers Carnegie Mellon University (CMU) undergraduates a course of study focusing on military strategy and the current national security landscape, including how cybersecurity and artificial intelligence influence national security decision making, and the full range of strategic challenges facing future leaders.

While the minor is open to all CMU undergraduates, it is particularly appropriate for CMU students embarking on the Reserve Officer Training Corps (ROTC) program as well as those interested in pursuing defense-related careers. CMU typically has several dozen ROTC students annually, spread throughout the university, along with many others who are interested in defense and strategy issues. Many students major in STEM fields, where they learn valuable technical skills but are exposed to little of the wider strategic context facing military leaders and decision-makers or to the political and institutional frameworks in which they operate. This minor is designed to complement other disciplines and fill that gap.

In short, the Military Strategy and International Relations minor offers future military and defense leaders insight into the national and international strategic challenges they will navigate in the future.

The Military Strategy and International Relations minor teaches future leaders how diplomacy, information, economics, development, and defense intersect. It engages students in the whys and hows of national strategy, military planning, and the future of warfare. In addition, the minor emphasizes the political, legal, and institutional systems that shape military affairs, with core courses on the topics of civil-military relations, military strategy, governance, diplomacy, and policy decision-making. Finally, the minor stresses the use of cutting-edge analytical and social science methods to prepare students for advanced training, study, and government or military service in national and international security.

Curriculum

60 units

Students may double count a maximum of two courses (18 units) with another major or minor. Unlimited double counting is permitted with general education requirements.

Core Courses

Students must take the following core courses (33 units):

Military Strategy		
84-328	Military Strategy and Doctrine	9
Governance		
84-319	Civil-Military Relations	9
Diplomacy (select one)		
84-325	Contemporary American Foreign Policy	9
84-362	Diplomacy and Statecraft	9
Policy		
84-450	Policy Seminar	6

Electives

Students must complete a total of 27 units (typically three courses) from the following list of courses. At least 9 units (typically one course) must

be taken from the Carnegie Mellon Institute for Strategy and Technology (CMIST) and have an 84-number.

Electives		
84-104	Decision Processes in American Political Institutions	9
84-120	Introduction to US Constitutional Law	9
84-200	Security War Game Simulation	6
84-226	International Relations	9
84-274	An Introduction to Technology and War	9
84-275	Comparative Politics	9
84-280	Popcorn and Politics: American Foreign Policy at the Movies	10
84-303	International Human Rights	6
84-309	American Political Divides and Great Debates	9
84-312	Terrorism in Sub-Saharan Africa	6
84-313	International Organizations and Law	6
84-317	Defense PPBE in the Age of Emerging Technologies	6
84-318	Politics of Developing Nations	9
84-322	Nonviolent Conflict and Revolution	9
84-323	War and Peace in the Contemporary Middle East	9
84-324	The Future of Democracy	9
84-325	Contemporary American Foreign Policy <small>If not used as a core course, course may count as an elective.</small>	9
84-329	Asian Strategies	6
84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-362	Diplomacy and Statecraft <small>If not used as a core course, course may count as an elective.</small>	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-365	The Politics of Fake News and Misinformation	9
84-367	The Politics of Antisemitism	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-380	US Grand Strategy	9
84-383	Cyber Policy as National Policy	6
84-386	The Privatization of Force	9
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-389	Terrorism and Insurgency	9
84-390	Social Media, Technology, and Conflict	9
84-393	Legislative Decision Making: US Congress	9
84-405	The Future of Warfare	9
17-200	Ethics and Policy Issues in Computing	9
32-201	Leadership & Management	9
32-310	Evolution Of Warfare	9
32-402	Leadership and Ethics	9
79-257	Germany and the Second World War	9
79-268	World War I: The Twentieth Century's First Catastrophe	9
79-302	Killer Robots? The Ethics, Law, and Politics of Drones and A.I. in War	9
80-136	Social Structure, Public Policy & Ethics	9

Minor in Political Science, Security, and Technology

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<http://www.cmu.edu/cmist/> (<https://www.cmu.edu/cmist/>)

The Minor in Political Science, Security, and Technology is designed for students who are majoring in fields from the arts and humanities to science, engineering, and computer science. By adding a new dimension to their major field of study, these students will gain the background and knowledge to address the ethical, social, and political dimensions of new technologies from a political science perspective.

The minor in Political Science, Security, and Technology takes a social science (not technical) approach to studying emerging technologies that affect war and peace. There is no better place to study security and technology than Carnegie Mellon University, a thought leader in global and national security issues, policies, and strategies related to digital technologies. CMU students are uniquely poised to influence the future, with cutting-edge research happening across campus in all the relevant technological areas--e.g., machine learning, cybersecurity, robotics, big data, neuroscience, human-computer interaction, human enhancement, synthetic biology, and various types of artificial intelligence.

In completing this course of study, Carnegie Mellon undergraduates will learn how to analyze the political, economic, social, and ethical dimensions of new technologies, equipping themselves to contribute to vital political debates and influence technological developments in the public interest.

Curriculum (63 units)

A maximum of two courses may double count between the minor in Politics and Public Policy and another major or minor. Unlimited double counting is permitted with General Education requirements.

Political Science Core (18 units)

Students must complete:

84-226	International Relations	9
--------	-------------------------	---

Students must complete one of the following courses:

84-104	Decision Processes in American Political Institutions	9
84-275	Comparative Politics	9

Security and Technology Core (45 units)

Students must complete:

84-274	An Introduction to Technology and War	9
--------	---------------------------------------	---

Students must complete 36 units from the following list of courses:

84-349	Digital Diplomacy: Cybersecurity Challenges and Global Governance	9
84-350	A Strategist's Introduction to Artificial Intelligence	9
84-363	Click. Hack. Rule: Understanding the Power & Peril of Cyber Conflict	9
84-370	Nuclear Security & Arms Control	9
84-372	Space and National Security	9
84-373	Emerging Technologies and International Law	9
84-383	Cyber Policy as National Policy	6
84-387	Remote Systems and the Cyber Domain in Conflict	9
84-388	Concepts of War and Cyber War	6
84-390	Social Media, Technology, and Conflict	9
84-405	The Future of Warfare	9

Minor in Politics and Public Policy

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
 acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
 ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

<https://www.cmu.edu/cmist/>

Rooted in the discipline of political science, the minor in Politics and Public Policy investigates US public policy issues and other matters of domestic politics while providing students hands-on and practical learning experiences. Students pursuing the Politics and Public Policy minor must participate in the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/>) for one semester during their undergraduate years.

The CMU/WSP, sponsored by the Carnegie Mellon Institute for Strategy and Technology (CMIST), is a semester-long program in which students live, intern, and take CMU classes on Capitol Hill in Washington, DC.

Undergraduates from any course of study at the university may participate in the program. Students earn 48 units for the Carnegie Mellon University Washington Semester Program, interning about twenty-four hours per week in any sector or field of interest within the Washington, DC, metropolitan region, while taking classes on American politics, public policy, and law taught by CMU faculty.

Through this experiential learning program, CMU/WSP participants develop professional and networking skills, explore how coursework connects to the real world, learn to give and receive constructive feedback in the workplace and classroom, and intentionally reflect on their learning and growth. CMU/WSP students are connected with Washington, DC-based alumni to share career advice and tips about life in DC. CMIST also sponsors events and policy-oriented opportunities in Washington for students participating in the program to further enrich their experience and enhance their understanding of how Washington functions as a hub of international and US policy decision making.

Curriculum (66 units)

A maximum of two courses may double count between the minor in Politics and Public Policy and another major or minor. Unlimited double counting is permitted with general education requirements.

Internship (24 units)

Students must take the following courses while participating in the CMU/WSP (24 units):

84-360	CMU/WSP: Internship Seminar	24
--------	-----------------------------	----

Seminar on Public Policy Research, Writing and Implementation (12 units)

Full semester course. Options vary by semester. Students enroll in one course from the following list:

84-336	Implementing Public Policy: From Good Idea To Reality	12
84-339	Seminar in Public Policy Research	12

Seminars on American Politics, Governance, Institutions, and Law (12 units)

Students enroll in one course in each mini during the semester they are in Washington, DC, for a total of 2 seminars and 12 units:

84-332	Contemporary US Constitutional Law Issues	6
84-338	Analysis of US Presidential Powers	6

Foundational Course (9 units)

Students select one course (9 units) from the following list of courses offered at Carnegie Mellon University's Pittsburgh or Qatar campus. Students may take this course before or after participating in the CMU/WSP. Qatar students should contact the Deputy Director for Academic Affairs (<https://www.cmu.edu/cmist/about-us/people/staff/emily-half.html>) to identify appropriate substitutions taught in Qatar at neighboring universities.

84-104	Decision Processes in American Political Institutions	9
84-226	International Relations	9
84-275	Comparative Politics	9

Data Science / Economics Requirement (9 units)

Students must complete one course (9 units) from the following list of courses offered Carnegie Mellon University's Pittsburgh or Qatar campus. Students may take this course before or after participating in the CMU/WSP.

84-110	The Economics of Politics, Policy, and Technology	9
36-202	Methods for Statistics & Data Science	9
73-102	Principles of Microeconomics	9
73-103	Principles of Macroeconomics	9
73-104	Principles of Microeconomics Accelerated	9

Carnegie Mellon University Washington Semester Program

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director*
ehalf@andrew.cmu.edu; 412-268-7082, Posner Hall 391

Ashley Barnes, *Washington Program Manager*
ashleyba@andrew.cmu.edu; 202-608-8316, 100 Maryland Ave NE, Suite 510, Washington, DC 20002

www.cmu.edu/cmist (<http://coursecatalog.web.cmu.edu/schools-colleges/dietrichcollegeofhumanitiesandsocialsciences/carnegiemelloninstituteofstrategyandtechnology/www.cmu.edu/cmist/>)

The Carnegie Mellon University Washington Semester Program (CMU/WSP), sponsored by the Carnegie Mellon Institute for Security and Technology (CMIST), is a semester-long program in which students live, intern, and take CMU classes in Washington, DC. Full-time undergraduates from any course of study at the university may participate in the program. Students earn forty-eight units for the Carnegie Mellon University Washington Semester Program, interning about twenty-four hours per week in any sector or field of interest within Washington, DC, while taking classes taught by Carnegie Mellon faculty.

From embassies to nongovernmental organizations, think tanks to advocacy organizations, government agencies to congressional offices, and consulting firms to media outlets, Washington, DC, is the center for many political, international relations, and public policy activities. Students in the program come into direct contact with political, business, and community leaders and learn about the most pressing policy issues of the day.

Through this experiential learning program, CMU/WSP participants develop professional and networking skills, explore how coursework connects to the real world, learn to give and receive constructive feedback in the workplace and classroom, and intentionally reflect on their learning and growth. Every CMU/WSP student is paired with a Washington, DC-based alumni mentor to share career advice and tips about life in DC. CMIST also sponsors events and policy-oriented opportunities in Washington for students participating in the program to further enrich their experience and enhance their understanding of how Washington functions as a hub of international and policy decision making.

Students should contact the Washington Program Manager to discuss the specifics of the program and the deputy director to discuss how the CMU/WSP may fit into their curriculum. Students who participate in the CMU/WSP may qualify for a minor in Politics and Public Policy (<https://www.cmu.edu/ips/undergraduate%20degrees/minors/minor-in-politics-and-public-policy.html>).

Applications (<https://www.cmu.edu/ips/washington-dc-semester-program/application.html>) are accepted on a rolling admission basis with a final deadline of October 1, for spring semester participation, and March 1, for fall semester participation.

Curriculum

Students who are admitted to the CMU/WSP will be enrolled in the 3 unit (pass/no pass) course 84-215 Tomorrow's Professionals in the mini semester directly preceding their time in DC.

During the semester in Washington, all students enroll in the following core seminars (24 units).

Core Seminars

84-360	CMU/WSP: Internship Seminar	24
84-450	Policy Seminar	6

Students must enroll in 24 units from the below list of elective seminars. Offerings vary by semester.

Elective Seminars

84-313	International Organizations and Law	6
84-336	Implementing Public Policy: From Good Idea To Reality	12
84-339	Seminar in Public Policy Research	12

Master of Science in Security, Technology, and International Relations (MS STAIR)- Accelerated Track (AMP)

Audrey Kurth Cronin, *Director, Trustees Professor of Security and Technology*
acronin@andrew.cmu.edu, Posner Hall 385A

Emily Half, *Deputy Director for Academic Affairs*
ehalf@andrew.cmu.edu, Posner Hall 391, 412-268-7082

Mark Gardner, *Graduate Program Manager*
markgard@andrew.cmu.edu, Posner Hall 387D, 412-268-7227

<http://www.cmu.edu/cmist> (<https://www.cmu.edu/cmist/>)

The Master of Science in Security, Technology, and International Relations (MS STAIR) takes a social science approach to studying global trends and technologies that affect war and peace. In completing this course of study, Carnegie Mellon University masters students will learn how to analyze the political, economic, social, and ethical dimensions of new technologies, equipping themselves to contribute to vital political debates and influence policy developments in the public interest.

The lesson of the past few years is that the pace of technological change will alter every aspect of human existence. Today it is easy to read (DNA sequencing), write (DNA synthesizing), alter (gene editing) and share (via the internet) genetic code. This makes synthetic biology as revolutionary as the printing press was in the 15th century-- both for good (curing diseases like cancer) or ill (creating new, dangerous pathogens).

Perhaps even more fundamental in its impact, synthetic biology will alter every aspect of human existence. Today it is easy to read (DNA sequencing), write (DNA synthesizing), alter (gene editing) and share (via the internet) genetic code. This makes synthetic biology as revolutionary as the printing press was in the 15th century-- both for good (curing diseases like cancer) or ill (creating new, dangerous pathogens).

The full effects of these technologies are some years away, but graduate students heading into government, non-governmental organization and private tech sector careers must be well-equipped to shape and adapt to them. Technological change is affecting war and peace, the distribution of wealth, the value of work, the definition of truth, what it means to be human, and the future of global stability.

There is no better place to study these topics than Carnegie Mellon University, a thought leader in global and national security issues, policies, and strategies related to digital technologies. CMU graduate students will be uniquely poised to influence the future, with cutting-edge research happening across the Pittsburgh campus in all the relevant technological areas-- e.g., machine learning, cybersecurity, robotics, big data, neuroscience, human-computer interaction, human enhancement, synthetic biology, and various types of artificial intelligence.

In addition to its Pittsburgh location, the Carnegie Mellon Institute for Strategy and Technology (CMIST) has a robust presence in Washington, DC, where it focuses on understanding, shaping, and contributing to the policymaking process across national and international agencies and organizations. With a well-located facility in the heart of Capitol Hill-- across from the U.S. Capitol building and adjacent to the Supreme Court-- CMIST provides graduate students with privileged access to current and former policymakers, excellent teaching by experienced professionals, and networking opportunities through career-enhancing internships.

The MS STAIR is a 12-month program that includes two semesters in Pittsburgh (fall, spring) and a final (summer) semester in Washington, DC. For the accelerated version of the program, students will have already completed a semester in Washington, DC, and an internship through the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>) during their undergraduate coursework at CMU. Participation in the CMU/WSP is a prerequisite for the MS STAIR-AMP. They will complete the graduate coursework in one additional academic year (5th year) and graduate in May. Full curricular details and application information are available on the CMIST website (<https://www.cmu.edu/cmist/>).

The MS STAIR is a 12-month program that includes two semesters in Pittsburgh (fall, spring) and a final (summer) semester in Washington, DC. For the accelerated version of the program, students will have already completed a semester in Washington, DC, and an internship through the Carnegie Mellon University Washington Semester Program (CMU/WSP) (<https://www.cmu.edu/cmist/washington-center/washington-semester-program/>) during their undergraduate coursework at CMU. Participation in the CMU/WSP is a prerequisite for the MS STAIR-AMP. They will complete the graduate coursework in one additional academic year (5th year) and graduate in May. Full curricular details and application information are available on the CMIST website (<https://www.cmu.edu/cmist/>).

Faculty

AUDREY KURTH CRONIN, Trustees Professor of Security and Technology;
Director - DPhil, University of Oxford; Carnegie Mellon, 2023-

IGNACIO ARANA ARAYA, Assistant Professor – PhD, University of Pittsburgh; Carnegie Mellon, 2016–

HANNAH BAILEY, Assistant Professor – DPhil, University of Oxford; Carnegie Mellon, 2025–

HALEIGH BARTOS, Associate Professor of the Practice – MSW, University of Pittsburgh; Carnegie Mellon, 2021–

JUSTIN CANFIL, Assistant Professor – PhD, Columbia University; Carnegie Mellon, 2023–

JONATHAN CERVAS, Assistant Teaching Professor – PhD, University of California, Irvine; Carnegie Mellon, 2020–

JOHN J. CHIN, Assistant Teaching Professor – PhD, Princeton University; Carnegie Mellon, 2016–

BARUCH FISCHHOFF, Howard Heinz University Professor in the Carnegie Mellon Institute for Strategy and Technology and the Department of Engineering and Public Policy – PhD, The Hebrew University of Jerusalem; Carnegie Mellon, 1987–

MARK S. KAMLET, University Professor of Economics and Public Policy; Provost Emeritus – PhD, University of California, Berkeley; Carnegie Mellon, 1978–

NADIYA KOSTYUK, Assistant Professor – PhD, University of Michigan; Carnegie Mellon, 2024–

HARVEY RISHIKOF, Visiting Professor – JD, New York University; Carnegie Mellon, 2024–

JOSHUA SCHWARTZ, Assistant Professor – PhD, University of Pennsylvania; Carnegie Mellon, 2023–

DANIEL M. SILVERMAN, Assistant Professor – PhD, The Ohio State University; Carnegie Mellon, 2017–

Post-Doctoral Fellows

NICOLE KLIEWER, Postdoctoral Fellow – PhD, Princeton University; Carnegie Mellon, 2023–

Scholar in Residence

PATRICK CRONIN, Scholar in Residence – DPhil, University of Oxford; Carnegie Mellon, 2023–

Lecturers

MATTHEW BUTKOVIC, Lecturer – Master of Professional Studies, Pennsylvania State University; Carnegie Mellon, 2015–

KELLY VOSS COLETTI, Lecturer – PhD, University of Pittsburgh; Carnegie Mellon, 2020–

FRED CRAWFORD, Lecturer – JD, Georgetown University; Carnegie Mellon, 2017–

DALE CROWELL, Lecturer – MA, Catholic University of America; Carnegie Mellon, 2018–

MOLLY DUNIGAN, Senior Lecturer – PhD, Cornell University; Carnegie Mellon, 2014–

MATTHEW LANE, Lecturer – PhD, The Pennsylvania State University; Carnegie Mellon, 2021–

SOPHIE LE BLANC, Lecturer – PhD, University of Delaware; Carnegie Mellon, 2017–

WILLIAM M. MARCELLINO, Lecturer – PhD, Carnegie Mellon University; Carnegie Mellon, 2021–

GEOFFREY MCGOVERN, Senior Lecturer – PhD, Binghamton University, JD, Harvard University; Carnegie Mellon, 2013–

FORREST E. MORGAN, Senior Lecturer – PhD, University of Maryland; Carnegie Mellon, 2017–

ANDREW J. STRAVERS, Lecturer – PhD, University of Texas, Austin; Carnegie Mellon, 2021–

MARK A. TOUKAN, Lecturer – PhD, University of Wisconsin, Madison; Carnegie Mellon, 2021–