BCSA-Gen Ed Bachelor of Computer Science and Arts (BCSA)

Fall 2024

BCSA General Education (Gen Ed) Requirements — 122 units (minimum)

University Requirement — **3 units**

99-101B Core@CMU (Fall, First-year) 3

Writing — **9 units**

76-101 Interpretation and Argument (First-year) 9
or 76-102 Advanced First Year Writing: Special Topics (invite only)
or choose two mini courses from the following list:
76-106 Writing about Literature, Art and Culture 4.5
76-107 Writing about Data 4.5
76-108 Writing about Public Problems 4.5

Mathematics & Probability — **29 units minimum**

Choose two mathematics courses: 20 units minimum
21-122 Integration and Approximation 10
21-259 Calculus in Three Dimensions 10
or 21-266 Vector Calculus for Computer Scientists
or 21-241 Matrices and Linear Transformations (11)

Choose one probability course(s): 9 units minimum
15-259 Probability and Computing 12
21-325 Probability 9
36-218 Probability Theory for Computer Scientists 9
36-225 Introduction to Probability Theory 18
& 36-226 Introduction to Statistical Inference

Science & Engineering — **18 units minimum**

Choose two science courses from differing departments
or one science and one engineering course from the following list:
03-121 Modern Biology 9
03-125 Evolution 9
03-132 Basic Science to Modern Medicine 9
03-133 Neurobiology of Disease 9
03-135 Structure and Function of the Human Body 9
03-140 Ecology and Environmental Science 9
03-161 Molecules to Mind 9
06-100 Introduction to Chemical Engineering 12
09-105 Introduction to Modern Chemistry I 10
09-106 Modern Chemistry II * 10
09-225 Climate Change: Chemistry, Physics and Planetary Science * 9
12-100 Exploring CEE: Infrastructure and Environment in a Changing World 12
12-201 Geology 9
12-351 Environmental Engineering * 9
18-095 Getting Started in Electronics: An Experiential Approach 9
18-100 Introduction to Electrical and Computer Engineering 12
18-220 Electronic Devices and Analog Circuits * 12
18-240 Structure and Design of Digital Systems * 12
24-101 Fundamentals of Mechanical Engineering 12
24-292 Renewable Energy Engineering * 9
24-358 Culinary Mechanics 9
24-381 Environmental Systems on a Changing Planet 12
27-215 Thermodynamics of Materials 12
33-114 Physics of Musical Sound 9
33-120 Science and Science Fiction 9
33-121 Physics I for Science Students * 12
or 33-141 Physics I for Engineering Students * 12
33-224 Stars, Galaxies and the Universe * 9
33-225 Quantum Physics and Structure of Matter * 9
33-226 Physics of Energy * 9
42-101 Introduction to Biomedical Engineering 12
42-202 Physiology * 9
85-219 Biological Foundations of Behavior 9
Labs:
02-261 Quantitative Cell and Molecular Biology Laboratory * Var.
03-124 Modern Biology Laboratory 9
27-100 Engineering the Materials of the Future * 12
33-104 Experimental Physics 9
42-203 Biomedical Engineering Laboratory * 9

Economic, Political and Social Institutions *or* Cognition, Choice and Behavior — **9 units minimum**

*Choose one course from **either** category:*

Economic, Political, and Social Institutions

19-101 Introduction to Engineering and Public Policy 12
36-303 Sampling, Survey and Society * 9
66-221 Topics of Law: Introduction to Intellectual Property Law 9
70-332 Business, Society and Ethics * 9
73-102 Principles of Microeconomics 9
or 73-104 Principles of Microeconomics Accelerated 9
73-103 Principles of Macroeconomics *
76-425 Rhetoric, Science, and the Public Sphere * 9
79-101 Making History: How to Think About the Past (and Present) 9
79-189 History of Democracy: Thinking Beyond the Self 9
79-237 Comparative Slavery 9
79-244 Women in American History 9
79-253 Imperialism and Decolonization in South Asia 9
79-300 History of American Public Policy 9
79-320 Women, Politics, and Protest 9
79-321 Documenting Human Rights 9
79-331 Body Politics: Women and Health in America 9
79-370 Technology in the United States 9
79-383 The History of Capitalism 9
79-391 Nations and Nationalisms in South Asia 9
79-392 Europe and the Islamic World 9
80-135 Introduction to Political Philosophy 9
80-136 Social Structure, Public Policy & Ethics 9
80-244 Environmental Ethics 9
80-245 Medical Ethics 9
80-324 Philosophy of Economics 9
80-334/335 Social and Political Philosophy 9
80-348 Health, Human Rights, and International Development 9
84-104 Decision Processes in American Political Institutions 9
84-110 Foundations of Political Economy 9
84-275 Comparative Politics 9
84-322 Nonviolent Conflict and Revolution 9
84-324 The Future of Democracy 9
84-352 Representation and Voting Rights 9
84-362 Diplomacy and Statecraft 9
84-365 The Politics of Fake News and Misinformation 9
84-380 US Grand Strategy 9
84-386 The Privatization of Force 9
84-387 Remote Systems and the Cyber Domain in Conflict 9
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
88-281 Topics of Law: 1st Amendment 9
88-284 Topics of Law: The Bill of Rights 9

Cognition, Choice, and Behavior

70-311 Organizational Behavior * 9
70-318 Managing Effective Work Teams * 9
70-385 Consumer Behavior * 9
80-101 Dangerous Ideas in Science and Society 9
80-130 Introduction to Ethics 9
80-150 Nature of Reason 9
80-180 Nature of Language 9
80-221 Philosophy of Social Science 9
80-252 Kant 9
80-270 Philosophy of Mind and Body: Meaning and Doing 9
80-271 Mind and Body: The Objective and the Subjective 9
80-275 Metaphysics 9
80-330 Ethical Theory 9
85-102 Introduction to Psychology 9
85-104 Psychopathology 9
85-211 Cognitive Psychology 9

85-213	Human Information Processing and Artificial Intelligence *	9
85-221	Principles of Child Development	9
85-241	Social Psychology	9
85-251	Personality	9
85-261	Psychopathology	9
85-370	Perception	9
85-408	Visual Cognition *	9
85-414	Cognitive Neuropsychology *	9
85-421	Language and Thought *	9
88-120	Reason, Passion and Cognition	9
88-230	Human Intelligence and Human Stupidity	9
88-231	Thinking In Person vs. Thinking Online	9

* Indicates co-requisites and/or prerequisites required.

Additional Dietrich College Courses **18 units minimum**

Complete two non-technical courses. Consult with your BXA advisor to determine the best courses to fulfill this requirement.

BXA Required Courses **36 units**

52-190	BXA Sem. I: Building the Wunderkammer (Spring Mini-3, First-year)	4.5
52-291	BXA Sem. II: Transferring Knowledge (Spring Mini-4, Sophomore)	4.5
52-392	BXA Sem. III: Deconstructing Disciplines (Spring, Junior)	9
52-401	BXA Sem. IV: Capstone Project Research (Fall, Senior)	9
52-402	BXA Sem. V: Capstone Project Production (Spring, Senior)	9

BCSA Free Electives **11-33 units (minimum)**

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement.