BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Bachelor of Science in Computer Science

The Bachelor of Science in Computer Science at Kentucky State University provides students with a strong foundation in programming, software development, and computer systems, while emphasizing problem-solving, critical thinking, and innovation. The program integrates theoretical knowledge with practical application, preparing graduates for careers in technology, government, business, or for further study in graduate programs. Through hands-on projects, research opportunities, and industry-relevant coursework, students gain the skills needed to thrive in a rapidly evolving digital landscape.

Our computer science tracks are Game Development (https://kysu-public.courseleaf.com/undergraduate/business-engineering-technology/school-of-math-and-computer-sciences/game-development-bs/), Computer Information Systems (https://kysu-public.courseleaf.com/undergraduate/business-engineering-technology/school-of-math-and-computer-sciences/information-systems-bs/), Mathematics (https://kysu-public.courseleaf.com/undergraduate/business-engineering-technology/school-of-math-and-computer-sciences/mathematics-bs/), Computer Information Security (https://kysu-public.courseleaf.com/undergraduate/business-engineering-technology/school-of-math-and-computer-sciences/information-security-bs/), and Network Engineering (https://kysu-public.courseleaf.com/undergraduate/business-engineering-technology/school-of-math-and-computer-sciences/network-engineering-bs/), each designed to equip students with specialized knowledge and practical skills in high-demand areas of the tech industry. These tracks allow students to tailor their education to match their career goals—whether it's creating immersive digital experiences, managing enterprise IT systems, advancing in cybersecurity, or mastering the mathematical foundations of computing.

Students majoring in Computer Science must complete a minimum of 120 semester credit hours, including General Education and Supporting Course Requirements.

Computer Science Core Courses are:

Code	Title	Hours
COS 107	Prob Solving, Logic & Design	3
COS 108	Prin Computer Science I	4
COS 109	Prin Computer Sci II	4
COS 281	Introduction to Info. Sec. & A	3
DGE 300	Software Eng Computing Games	3
or COS 300	System Design/Development	
COS 301	Computer Organization	4
COS 302	Operating Systems	3
COS 310	Discrete Computing Structures	3
COS 340	Data Struc Algorithm Analy	3
COS 410	Database Management Systems	3
COS 495	Interactive Gaming Project	3

Computer Science Bachelor of Science -Computer Information Security Track

Course	Title	Hours
Year 1		
Term 1 (Fall)		
FYE 118	First Year Experience	3
ENG 101	English Comp I	3
MAT 115	College Algebra	3
COS 107	Prob Solving, Logic & Design	3
Natural Science Elective		3
CHE 101	General Chemistry I (must take with CHE 110)	
or BIO 101	or Life Science	
or BIO 111	or Principles of Biology	
or CHE 109	or Chemistry in Context	
or CHE 209	or Survey Gen/Organic/Biochemi	
or PHS 201	or Physical Sciences I	
	Hours	**15**
Term 2 (Spring)		
ENG 102	English Comp II	3
MAT 125	Business Calculus and Matrices	3
COS 108	Prin Computer Science I	4
Social or Behavioral Elective		3
FIN 101	Financial Literacy	
or ECO 201	or Prin of Economics I	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
Guided Elective		3
	Hours	**16**
Year 2		
Term 3 (Fall)		
COM 103	Interpersonal Communication	3
COS 109	Prin Computer Sci II	4
Social or Behavioral Elective		3
SOC 203	Principles of Sociology	
or FIN 101	or Financial Literacy	
or PSY 200	or General Psychology	
or ECO 201	or Prin of Economics I	
Arts		
ART 130	Introduction to Art	3
or MUS 130	or Introduction to Music	
or THE 130	or Introduction to Theatre	
or ENG 211	or Intro to Literature	
Free Elective		1
	Hours	**14**
Term 4 (Spring)		
ENG 216	Technical Writing	3
COS 200	Computer Information Systems	3
COS 281	Introduction to Info. Sec. & A	3
COS 340	Data Struc Algorithm Analy	3
Humanities Elective		
BUA 120	Business and Society	3
or EDU 204	or Cultural Responsiveness	
or HIS 103	or Western Civilization	
or HIS 108	or Intro to African American Hist	
	Hours	**15**
Year 3		
Term 5 (Fall)		
COS 275	Game Programming Foundation I	4
COS 300	System Design/Development	3

Course	Title	Hours
or DGE 300 Software Eng Computing Games		
COS 301	Computer Organization	4
COS 310	Discrete Computing Structures	3
Guided Elective		3
Hours		**17**
Term 6 (Spring)		
COS 302	Operating Systems	3
COS 334	Computer Forensics	4
COS 364	Data Storage and Data Mining	3
Global/Civic		3
AFE 117	Global Perspect Ag/Food/Env	
or ASP 303	or American Civil Rights Movement	
or POS 361	or World Politics	
or POS 101	or American Government	
Guided Elective		3
Hours		**16**
Year 4		
Term 7 (Fall)		
COS 303	Human Perspective on Computing	3
COS 332	Management Information Securit	3
COS 470	Networking/Telecommun	3
COS 484	Intro to Network Security	3
COS 495	Interactive Gaming Project	3
Hours		**15**
Term 8 (Spring)		
COS 410	Database Management Systems	3
COS 435	Advanced Topics in Cyber Secur	3
COS/CIT 200 Elective		3
COS 300/400 Elective		3
Hours		**12**
Total Hours		**120**

Computer Science Bachelor of Science - Game Development Track)

Course	Title	Hours
Year 1		
Term 1 (Fall)		
FYE 118	First Year Experience	3
COS 107	Prob Solving, Logic & Design	3
ENG 101	English Comp I	3
MAT 115	College Algebra	3
Natural Science Elective		3
CHE 101	General Chemistry I (must be taken with CHE 110)	
or BIO 101	or Life Science	
or BIO 111	or Principles of Biology	
or CHE 109	or Chemistry in Context	
or CHE 209	or Survey Gen/Organic/Biochemi	
or PHS 201	or Physical Sciences I	
Hours		**15**
Term 2 (Spring)		
COS 108	Prin Computer Science I	4
ENG 102	English Comp II	3
MAT 125	Business Calculus and Matrices	3
Social or Behavioral Elective		3
FIN 101	Financial Literacy	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
or ECO 201	or Prin of Economics I	
Guided Elective		3
Hours		**16**

Course	Title	Hours
Year 2		
Term 3 (Fall)		
ENG 216	Technical Writing	3
COM 103	Interpersonal Communication	3
COS 109	Prin Computer Sci II	4
COS 275	Game Programming Foundation I	4
Arts		3
ART 130	Introduction to Art	
or MUS 130	or Introduction to Music	
or THE 130	or Introduction to Theatre	
or ENG 211	or Intro to Literature	
Hours		**17**
Term 4 (Spring)		
COS 200	Computer Information Systems	3
COS 281	Introduction to Info. Sec. & A	3
COS 340	Data Struc Algorithm Analy	3
COS 375	Game Programming Foundation II	3
Humanities Elective		3
BUA 120	Business and Society	
or EDU 204	or Cultural Responsiveness	
or HIS 103	or Western Civilization	
or HIS 108	or Intro to African American Hist	
Free Elective		1
Hours		**16**
Year 3		
Term 5 (Fall)		
COS 301	Computer Organization	4
COS 303	Human Perspective on Computing	3
COS 310	Discrete Computing Structures	3
DGE 300	Software Eng Computing Games	3
Global/Civic		3
AFE 117	Global Perspect Ag/Food/Env	
or ASP 303	or American Civil Rights Movement	
or POS 361	or World Politics	
or POS 101	or American Government	
Hours		**16**
Term 6 (Spring)		
COS 302	Operating Systems	3
COS 385	Gaming and Computer Graphics	4
COS 475	Game Design and Development	3
Social or Behavioral Elective		3
SOC 203	Principles of Sociology	
or FIN 101	or Financial Literacy	
or PSY 200	or General Psychology	
or ECO 201	or Prin of Economics I	
Guided Elective		3
Hours		**16**
Year 4		
Term 7 (Fall)		
COS 300	System Design/Development	3
COS 470	Networking/Telecommun	3
COS 495	Interactive Gaming Project	3
COS/CIT 200 Elective		3
Hours		**12**
Term 8 (Spring)		
COS 410	Database Management Systems	3
COS/DGE 300/400 Elective		3
Free Elective		3
Guided Elective		3
Hours		**12**
Total Hours		**120**

Computer Science Bachelor of Science - Information Systems Track

Course	Title	Hours
Year 1		
Term 1 (Fall)		
FYE 118	First Year Experience	3
ENG 101	English Comp I	3
MAT 115	College Algebra	3
COS 107	Prob Solving, Logic & Design	3
Natural Science Elective		3
CHE 101	General Chemistry I (must be taken with CHE 110)	
or BIO 101	or Life Science	
or BIO 111	or Principles of Biology	
or CHE 109	or Chemistry in Context	
or CHE 209	or Survey Gen/Organic/Biochemi	
or PHS 201	or Physical Sciences I	
	Hours	**15**
Term 2 (Spring)		
ENG 102	English Comp II	3
MAT 125	Business Calculus and Matrices	3
COS 108	Prin Computer Science I	4
Arts		3
ART 130	Introduction to Art	
or MUS 130	or Introduction to Music	
or THE 130	or Introduction to Theatre	
or ENG 211	or Intro to Literature	
Guided Elective		3
	Hours	**16**
Year 2		
Term 3 (Fall)		
ACC 201	Principles of Accounting I	3
ENG 216	Technical Writing	3
COM 103	Interpersonal Communication	3
COS 109	Prin Computer Sci II	4
Humanities Elective (BUA 120 is recommended)		3
BUA 120	Business and Society	
or EDU 204	or Cultural Responsiveness	
or HIS 103	or Western Civilization	
or HIS 108	or Intro to African American Hist	
	Hours	**16**
Term 4 (Spring)		
BUA 320	Business Statistics	3
COS 200	Computer Information Systems	3
COS 281	Introduction to Info. Sec. & A	3
COS 340	Data Struc Algorithm Analy	3
Social or Behavioral Elective (ECO 201 is recommended)		3
ECO 201	Prin of Economics I	
or FIN 101	or Financial Literacy	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
	Hours	**15**
Year 3		
Term 5 (Fall)		
COS 275	Game Programming Foundation I	4
COS 300	System Design/Development	3
or DGE 300 Software Eng Computing Games		
COS 301	Computer Organization	4
COS 310	Discrete Computing Structures	3
Free Elective		2
	Hours	**16**
Term 6 (Spring)		
ECO 321	Quantitative Methods Dec Mak	3
COS 302	Operating Systems	3
COS 340	Data Struc Algorithm Analy	3
COS 410	Database Management Systems	3
Global/Civic		3
AFE 117	Global Perspect Ag/Food/Env	
or ASP 303	or American Civil Rights Movement	
or POS 361	or World Politics	
or POS 101	or American Government	
	Hours	**15**
Year 4		
Term 7 (Fall)		
COS 303	Human Perspective on Computing	3
COS 364	Data Storage and Data Mining	3
COS 470	Networking/Telecommun	3
COS Elective		3
COS 490	Seminar in Computer Science	3
or COS 495 Interactive Gaming Project		
	Hours	**15**
Term 8 (Spring)		
COS 300/400 Elective		3
COS/CIT 200 Elective		3
CIT 370	Information Tech Project Mgt	3
or COS 464	or Mgt of Computer Info Systems	
or MIS 300	or Management Info Systems	
Social or Behavioral Elective		3
FIN 101	Financial Literacy	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
or ECO 201	or Prin of Economics I	
	Hours	**12**
	Total Hours	**120**

Computer Science Bachelor of Science -- Mathematics Track

Course	Title	Hours
Year 1		
Term 1 (Fall)		
FYE 118	First Year Experience	3
ENG 101	English Comp I	3
MAT 115	College Algebra	3
COS 107	Prob Solving, Logic & Design	3
Natural Science Elective		3
CHE 101	General Chemistry I (must be taken with CHE 110)	
or BIO 101	or Life Science	
or BIO 111	or Principles of Biology	
or CHE 109	or Chemistry in Context	
or CHE 209	or Survey Gen/Organic/Biochemi	
or PHS 201	or Physical Sciences I	
	Hours	**15**
Term 2 (Spring)		
ENG 102	English Comp II	3
MAT 120	Precalculus	4
COS 108	Prin Computer Science I	4
Arts		3
ART 130	Introduction to Art	
or MUS 130	or Introduction to Music	
or THE 130	or Introduction to Theatre	
or ENG 211	or Intro to Literature	
Guided Elective		3
	Hours	**17**
Year 2		
Term 3 (Fall)		
ENG 216	Technical Writing	3
MAT 131	Calculus/Analy Geom I	5

COM 103	Interpersonal Communication	3
COS 109	Prin Computer Sci II	4
	Hours	**15**
Term 4 (Spring)		
MAT 132	Calculus/Analy Geom II	5
COS 200	Computer Information Systems	3
COS 281	Introduction to Info. Sec. & A	3
COS 300/400 Elective		3
	Hours	**14**
Year 3		
Term 5 (Fall)		
COS 300	System Design/Development	3
or DGE 300 Software Eng Computing Games		
COS 301	Computer Organization	4
COS 310	Discrete Computing Structures	3
Natural Science Elective		3
BIO 101	Life Science	
or BIO 111	or Principles of Biology	
or CHE 109	or Chemistry in Context	
or CHE 101	or General Chemistry I	
or PHY 211	or General Physics I	
or PHY 212	or General Physics II	
Social or Behavioral Science Elective		3
SOC 203	Principles of Sociology	
or FIN 101	or Financial Literacy	
or PSY 200	or General Psychology	
or ECO 201	or Prin of Economics I	
	Hours	**16**
Term 6 (Spring)		
COS 302	Operating Systems	3
COS 340	Data Struc Algorithm Analy	3
Natural Science Elective		3
BIO 111	Principles of Biology	
or PHY 212	or General Physics II	
or BIO 101	or Life Science	
or CHE 209	or Survey Gen/Organic/Biochemi	
or CHE 109	or Chemistry in Context	
Social or Behavioral Science Elective		3
FIN 101	Financial Literacy	
or ECO 201	or Prin of Economics I	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
Free Elective		3
	Hours	**15**
Year 4		
Term 7 (Fall)		
MAT 321	Probability/Statistics I	3
COS 303	Human Perspective on Computing	3
COS 470	Networking/Telecommun	3
COS 490	Seminar in Computer Science	3
or COS 495 Interactive Gaming Project		
Humanities Elective		3
BUA 120	Business and Society	
or EDU 204	or Cultural Responsiveness	
or HIS 103	or Western Civilization	
or HIS 108	or Intro to African American Hist	
	Hours	**15**
Term 8 (Spring)		
COS 410	Database Management Systems	3
COS/MAT 300/400 Elective		3
COS/MAT 300/400 Elective		3
Global/Civic		3

AFE 117	Global Perspect Ag/Food/Env	
or ASP 303	or American Civil Rights Movement	
or POS 361	or World Politics	
or POS 101	or American Government	
Free Elective		1
	Hours	**13**
	Total Hours	**120**

Computer Science Bachelor of Science -- Network Engineering Track

Course	Title	Hours
Year 1		
Term 1 (Fall)		
FYE 118	First Year Experience	3
ENG 101	English Comp I	3
MAT 115	College Algebra	3
CIT 111	Network Fundamentals	3
COS 107	Prob Solving, Logic & Design	3
	Hours	**15**
Term 2 (Spring)		
ENG 102	English Comp II	3
MAT 125	Business Calculus and Matrices	3
CIT 112	Router Theory and Config	3
COS 108	Prin Computer Science I	4
Guided Elective		3
	Hours	**16**
Year 2		
Term 3 (Fall)		
ENG 216	Technical Writing	3
COM 103	Interpersonal Communication	3
CIT 200	Network Operating Systems	3
CIT 211	LAN Switching and Wireless	3
or COS 314 Network Protocols		
COS 109	Prin Computer Sci II	4
	Hours	**16**
Term 4 (Spring)		
CIT 212	Intro to WAN Technology	3
COS 281	Introduction to Info. Sec. & A	3
Arts		3
ART 130	Introduction to Art	
or MUS 130	or Introduction to Music	
or THE 130	or Introduction to Theatre	
or ENG 211	or Intro to Literature	
Social or Behavioral Elective		3
FIN 101	Financial Literacy	
or PSY 200	or General Psychology	
or SOC 203	or Principles of Sociology	
or ECO 201	or Prin of Economics I	
Free Elective		2
	Hours	**14**
Year 3		
Term 5 (Fall)		
BIO 101	Life Science	3
or CHE 109 Chemistry in Context		
CIT 311	Advanced Routing	3
COS 301	Computer Organization	4
COS 310	Discrete Computing Structures	3
Social or Behavioral Elective		3

SOC 203 or PSY 200 or FIN 101 or ECO 201	Principles of Sociology or General Psychology or Financial Literacy or Prin of Economics I	
	Hours	**16**
Term 6 (Spring)		
CIT 312	Advanced LAN Switching	3
COS 302	Operating Systems	3
COS 410	Database Management Systems	3
Humanities Elective		3
BUA 120 or EDU 204 or HIS 103 or HIS 108	Business and Society or Cultural Responsiveness or Western Civilization or Intro to African American Hist	
Guided Elective		3
	Hours	**15**
Year 4		
Term 7 (Fall)		
CIT 453	Network Management	3
CIT 497	Topics in Info. Technology	3
or COS 499 Topics in Info Technology		
CIT 370	Information Tech Project Mgt	3
or COS 464 Mgmt of Computer Info Systems		
or MIS 300 Management Info Systems		
COS 303	Human Perspective on Computing	3
Global/Civic		3
AFE 117 or ASP 303 or POS 361 or POS 101	Global Perspect Ag/Food/Env or American Civil Rights Movement or World Politics or American Government	
	Hours	**15**
Term 8 (Spring)		
CIT 412	Optimizing Converged Networks	3
CIT 481	IT Independent Study	3
or COS 497 Indep Study in Computer Science		
or CIT 499 Information Technology Internship		
or COS 498 Internship in Computer Science		
COS 334	Computer Forensics	4
COS 484	Intro to Network Security	3
	Hours	**13**
	Total Hours	**120**