Course Tracks for **Computer Science (CSCI)**

The Computer Science (CSCI) program prepares students to work in the areas of software design, development, application, and maintenance. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science — Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	EE 109L *CSCI 102* 4	CSCI 310 or 353 or 356 or 360 4	GE A* 4	CSCI 310 or 353 or 356 or 360 4	WRIT 340 *WRIT 150* 4	GE D or E* 4
MATH 125 (GE F)* 4	MATH 129 or MATH 126* *MATH 125* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	MATH 229 or MATH 226 *MATH 129 or 126* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	TECHNICAL ELECTIVE II 4	TECHNICAL ELECTIVE III 4	CSCI 350 *CSCI 201, CSCI 356* 4
CSCI 103L *CSCI 102* 4	CSCI 104 *CSCI 103L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	TECHNICAL ELECTIVE I 4	CSCI 310 or 353 or 356 or 360 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	CSCI 310 or 353 or 356 or 360 4	CSCI 401 *CSCI 270, CSCI 310* or CSCI 404 *CSCI 201, CSCI 270* 4
CSCI 170 *CSCI 102* 4	GE C 4	GE C 4	BASIC SCIENCE (GE D OR E)* 4	BASIC SCIENCE II* 4	GE B 4	OPTIONAL ELECTIVE 6	ELECTIVE 6
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		

Computer Science — Begin with CSCI 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	CSCI 103L *CSCI 102* 4	EE 109L *CSCI 102* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	GE A* 4	CSCI 310 or 353 or 356 or 360 4	WRIT 340 *WRIT 150* 4	GE D OR E* 4
MATH 125 (GE F)* 4	CSCI 170 *CSCI 102* 4	CSCI 104 *CSCI 103L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	TECHNICAL ELECTIVE I 4	CSCI 310 or 353 or 356 or 360 4	TECHNICAL ELECTIVE II 4	CSCI 350 *CSCI 201, CSCI 356* 4
CSCI 102 2	MATH 129 or MATH 126* *MATH 125* 4	MATH 229 or MATH 226 *MATH 129 or 126* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	CSCI 310 or 353 or 356 or 360 4	EE 364 *MATH 225 OR 245* or MATH 407 *MATH 226* 4	CSCI 310 or 353 or 356 or 360 4	CSCI 401 *CSCI 270, CSCI 310* or CSCI 404 *CSCI 201, CSCI 270* 4
GE C 4	GESM (GE B)# 4	GE C 4	BASIC SCIENCE (GE D OR E)* 4	BASIC SCIENCE II* 4	GE B 4	OPTIONAL ELECTIVE 6	TECHNICAL ELECTIVE III 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2							

Computer Science (CSCI) Please see previous page.

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*

MATH 126 or 129: Calculus II*

MATH 226 or 229: Calculus III

MATH 225: Linear Algebra & Diff. Equations

or MATH 235: Linear Algebra & Applications

STATISTICS AND PROBABILITY (4 UNITS)

EE 364: Intro to Probability & Statistics

or MATH 407: Probability Theory

BASIC SCIENCE (8 UNITS)

One of the following science area course sequences:

- BISC 120L and BISC 220
- BISC 121 and BISC 221
- CHEM 105a and CHEM 105b
- CHEM 115a and CHEM 115b
- PHYS 151 and PHYS 152
- PHYS 161 and PHYS 162

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

ENGINEERING (52 UNITS)

CSCI 102L: Fundamentals of Computation

CSCI 103L: Introduction to Programming

CSCI 104L: Data Structures & Object Oriented Design

CSCI 170: Discrete Methods in Comp. Science

CSCI 201L: Princ. of Software Development

CSCI 270: Intro. to Algorithms & Theory of Computing

CSCI 310: Intro. to Software Engineering

CSCI 350: Introduction to Operating Systems

CSCI 353: Introduction to Internetworking

CSCI 356: Introduction to Computer Systems

CSCI 360: Introduction to Artificial Intelligence

CSCI 401: Capstone: Design and Construction of Large Software Systems

or CSCI 404: Capstone: Creating Your High-Tech Startup

EE 109: Introduction to Embedded Systems

ENGR 102: Engineering Freshman Academy

TECHNICAL ELECTIVES (12 UNITS)

Take at least three 4-unit 300- or 400-level CSCI courses for a minimum of 12 units.

FREE ELECTIVE (4 UNITS)

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 102, 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

TECHNICAL ELECTIVES: Required CSCI major courses cannot double count for technical elective credit.

Computer Science Games Please see next page.

MATHEMATICS (12 UNITS)

MATH 125: Calculus I*

MATH 126 or 129: Calculus II*

MATH 225: Linear Algebra & Diff. Equations

or MATH 235: Linear Algebra & Applications

or EE 141L: Applied Linear Algebra for Engineering

PHYSICS (4 UNITS)

PHYS 151L: Mechanics and Thermodynamics*
or **PHYS 161L:** Advanced Principles of Physics I

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

COMPUTER SCIENCE CORE (22 UNITS)

CSCI 102L: Fundamentals of Computation

CSCI 103L: Introduction to Programming

CSCI 104L: Data Structures & Object Oriented Design

CSCI 170: Discrete Methods in Comp. Science

CSCI 201L: Princ. of Software Development

CSCI 270: Intro. to Algorithms & Theory of Computing

COMPUTER SCIENCE CORE ELECTIVES (8 UNITS)

Choose at least 8 units of elective:

CSCI 350: Introduction to Operating Systems

CSCI 353: Introduction to Internetworking

CSCI 356: Intro. to Computer Systems

CSCI 360: Intro. to Artificial Intelligence

CSCI 420: Computer Graphics

GAME DEVELOPMENT CORE (16 UNITS)

TAC 380: Video Game Programming

CTIN 190: Intro to Interactive Entertainment

CTIN 488: Game Design Workshop

CTIN 489L: Intermediate Game Design Workshop

GAME DEVELOPMENT CORE ELECTIVES (6 UNITS)

Choose at least 6 units of elective from approved elective list: https://www.cs.usc.edu/academic-programs/undergrad/computer-science-games/

GAMES CAPSTONE (8 UNITS)

CSCI 491AL: Final Game Project

CSCI 491BL: Final Game Project

ENGINEERING (2 UNITS)

ENGR 102: Freshman Academy

FREE ELECTIVES (18 UNITS)

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

Course Tracks for **Computer Science Games (CSGA)**

The Computer Science Games degree (CSGA) offers technical and creative training for the video game industry. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science Games — Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CSCI 170 *CSCI 102* 4	PHYS 151L (GE E)* *MATH 125 or 126 or 226** 4	CSCI 201L *CSCI 104L* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	WRIT 340 *WRIT 150* 4	CSCI 491aL 4	CSCI 491bL 4
CSCI 103L *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	MATH 129 or MATH 126* *MATH 125* 4	TAC 380 *CSCI 104* 4	GE A* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	GE C 4	GE B 4
MATH 125 (GE F)* 4	CTIN 488 4	WRIT 150 4	FREE ELECTIVE 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	GE C 4	FREE ELECTIVE 4	FREE ELECTIVE 4
CTIN 190 4	GESM (GE B)# 4	GAMES ELECTIVE 4	CTIN 489L *CTIN 488* 4	GE D* 4	OPTIONAL ELECTIVE 6	FREE ELECTIVE 4	FREE ELECTIVE 6
ENGR 102 2	GAMES ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 4	OPTIONAL ELECTIVE 2			

Computer Science Games

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CSCI 102L 2	GESM (GE B)# 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	CSCI 491AL 4	CSCI 491bL 4
WRIT 150 4	MATH 125 (GE F)* 4	MATH 129 or MATH 126* *MATH 125* 4	TAC 380 *CSCI 104* 4	GE A* 4	GE C 4	GE C 4	GE B 4
CTIN 488 4	CSCI 170 *CSCI 102* 4	PHYS 151L (GE E)* *MATH 125 or 126 or 226* 4	CSCI 201L *CSCI 104L* 2	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	FREE ELECTIVE 4	FREE ELECTIVE 4	WRIT 340 *WRIT 150* 4
CTIN 190 4	CSCI 103L *CSCI 102* 2	GAMES ELECTIVE 4	CTIN 489L *CTIN 488* 4	GE D* 4	OPTIONAL ELECTIVE 6	FREE ELECTIVE 4	FREE ELECTIVE 4
ENGR 102 2	GAMES ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2			FREE ELECTIVE 4
OPTIONAL ELECTIVE 2							

Course Tracks for **Computer Science Business Administration (CSBA)**

The Computer Science/Business Administration program (CSBA) allows students to study both computer science and business in four years, focusing on the core subjects of each discipline. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science Business Administration— Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GESM (GE B)# 4	CSCI 103L *CSCI 102* 4	WRIT 150 4	BASIC SCIENCE (GE D OR E)* 4	BUAD 310 or 312 or EE 364 *MATH 225* or MATH 407 *MATH 226* 4	CSCI ELECTIVE 4	WRIT 340 *WRIT 150* 4	GE E or D* 4
MATH 125 (GE F)* 4	MATH 126 or 129* *MATH 125* 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	CSCI 201L *CSCI 104L* 4	BUAD 302 4	CSCI 310L *CSCI 201L* 4	BUSINESS ELECTIVE 2-4	GE B 4
GE C 4	ECON 351 *MATH 125 or 126 or 226* 4	ECON 352 *(ECON 351)* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	GE A* 4	GE C 4	CSCI 401 *CSCI 270, CSCI 310* 4	BUAD 497 *ACCT 410X, BUAD 304, 307, ECON 351 & BUAD 310 OR 312 OR EE 364 OR MATH 407* 4
BUAD 304 4	CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	ACCT 410x 4	BUAD 307 4	BUAD 306 4	BUAD 311 or BUAD 313 *BUAD 310 or BUAD 312 or EE 364 or MATH 407* 4	CSCI/BUSINESS ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2-4	OPTIONAL ELECTIVE 2

Computer Science Business Administration — Begin with CSCI 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE C 4	GESM (GE B)# 4	BUAD 302 4	CSCI 104L *CSCI 103L, CSCI 170* 4	BUAD 310 or 312 or EE 364 *MATH 225* or MATH 407 *MATH 226* 4	CSCI ELECTIVE 4	WRIT 340 *WRIT 150* 4	GE E or D* 4
MATH 125 (GE F)* 4	MATH 126 OR 129* *MATH 125* 4	ECON 352 *(ECON 351)* 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	CSCI 201L *CSCI 104L* 4	CSCI 310L *CSCI 201L* 4	BUSINESS ELECTIVE 2-4	GE B 4
WRIT 150 4	ECON 351 *MATH 125 or 126 or 226* 4	CSCI 170 *CSCI 102* 4	BUAD 307 4	GE A* 4	GE C 4	CSCI 401 *CSCI 270, CSCI 310* 4	BUAD 497 *ACCT 410X, BUAD 304, 307, ECON 351 & BUAD 310 OR 312 OR EE 364 OR MATH 407* 4
BUAD 304 4	BASIC SCIENCE (GE D or E)* 4	CSCI 103L *CSCI 102* 4	ACCT 410x 4	CSCI 270 *CSCI 104L, CSCI 170* 4	BUAD 306 4	BUAD 311 or BUAD 313 *BUAD 310 or BUAD 312 or EE 364 or MATH 407* 4	CSCI/BUSINESS ELECTIVE 4
ENGR 102 2	CSCI 102L 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2-4	OPTIONAL ELECTIVE 2

Computer Science Business Administration Please see previous page.

MATHEMATICS (12 UNITS)
MATH 125: Calculus I*
MATH 126 or MATH 129: Calculus II*
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications
or EE 141: Applied Linear Algebra for Engineering

STATISTICS & PROBABILITY (4 UNITS)
BUAD 310: Applied Business Statistics
BUAD 312: Statistics and Data Science for Business
or EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

BASIC SCIENCE (4 UNITS); Choose 1:
BISC 120L: General Biology
BISC 121: Advanced General Biology
CHEM 105a: General Chemistry
CHEM 115a: Advanced General Chemistry
PHYS 151: Fundamentals of Physics I
PHYS 161: Advanced Principles of Physics I

GENERAL EDUCATION (24 UNITS)
GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)
WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

BUSINESS REQUIREMENTS (36 UNITS)
ACCT 410X: Accounting for Non-Business Majors
BUAD 302: Communication Strategy in Business
BUAD 304: Organizational Behavior
BUAD 306: Business Finance
BUAD 307: Marketing Fundamentals
BUAD 311: Operations Management
or BUAD 313: Advanced Operations Management & Analytics
BUAD 497: Strategic Management
ECON 351: Microeconomics for Business
ECON 352: Macroeconomics for Business

COMPUTER SCIENCE (32 UNITS)
CSCI 102: Fundamentals of Computation
CSCI 103L: Introduction to Programming
CSCI 104L: Data Structures & Obj. Orient. Design
CSCI 170: Discrete Methods in Comp. Science
CSCI 201L: Princ. of Software Development
CSCI 270: Intro. to Algorithms & Theory of Comp.
CSCI 310: Intro. to Software Engineering
CSCI 401: Capstone: Design & Construction of Large Software Systems
or 404: Capstone: Creating Your High-Tech Startup
ENGR 102: Engineering Freshman Academy

TECHNICAL ELECTIVES (8 UNITS)
Computer Science Electives: Take at least one 4-unit 300- or 400-level CSCI course.
Business Electives: Take at least four units of 300- or 400-level courses offered by the Marshall School, specifically with a prefix of ACCT, BAEP, BUCO, BUAD, DSO, FBE, MKT, MOR, or RISK.

SPECIAL NOTES
Courses with a * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

Computer Engineering & Computer Science (Embedded Systems) Please see next page.

MATHEMATICS (16 UNITS)
MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications

STATISTICS AND PROBABILITY (4 UNITS)
EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

PHYSICS (8 UNITS)
PHYS 151L: Mechanics and Thermodynamics*
PHYS 152L: Electricity and Magnetism*
or PHYS 161: Advanced Principles of Physics I
PHYS 162: Advanced Principles of Physics II
or PHYS 171: Applied Physics I: Mechanics
PHYS 172: Applied Physics II: Electricity, Magnetism and Optics

GENERAL EDUCATION (32 UNITS)
GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)
WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (64 UNITS)
CSCI 102: Fundamentals of Computation
CSCI 103L: Introduction to Programming
CSCI 104L: Data Structures & Object Oriented Design
CSCI 170: Discrete Methods in Comp. Science
CSCI 270: Introduction to Algorithms & Theory of Computing
CSCI 430: Introduction to Computer and Network Security
EE 109: Introduction to Embedded Systems
EE 202: Linear Circuits
EE 250: Distributed Systems for the Internet of Things
EE 301: Linear Systems
EE 354L: Introduction to Digital Circuits
EE 457: Computer Systems Organization
EE 459: Embedded Systems Design Laboratory
ENGR 102: Engineering Freshman Academy
TECHNICAL ELECTIVES (12 UNITS)
FREE ELECTIVES (4 UNITS)

SPECIAL NOTES
*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

SENIOR DESIGN PROJECT: EE 459L.

TECHNICAL ELECTIVES: See approved tech elective list on CS webpage.

Course Tracks for **Computer Engineering & Computer Science**

The Computer Engineering & Computer Science program (CECS) trains students to integrate hardware and software processes to design solutions to problems arising in complex domains such as computers (e.g, CPUs, GPUs, and NPUs), Internet of Things, domain-specific ML accelerators, consumer electronics, and autonomous robots and drones. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Engineering & Computer Science (Embedded Systems)— Begin with CS 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE C)# 4	PHYS 151L *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	EE 202 *MATH 245* 4	GE B 4	GE B 4	CSCI 430 *CSCI 201* 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	GE A* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	WRIT 340 *WRIT 150* 4	EE 301 *EE 141, EE 202* 4	TECHNICAL ELECTIVE III 4	EE 459 *EE 354* 4
CSCI 103 *CSCI 102* 4	EE 109L *(CSCI 102)* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE D* 4	OPTIONAL ELECTIVE 2	FREE ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 4	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Embedded Systems) — Begin with CS 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE A 4	CSCI 170 *CSCI 102* 4	WRIT 150 4	PHYS 151L *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L* *PHYS 151, MATH 126 or 129* 4	GE D* 4	GE B 4	CSCI 430 *CSCI 201* 4
MATH 125 (GE F)* 4	CSCI 103 *CSCI 102* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245 or* MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
GESM (GE C)# 4	MATH 126 or MATH 129* *MATH 125* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	EE 202 *MATH 245* 4	EE 301 *EE 141, EE 202* 4	TECHNICAL ELECTIVE III 4	EE 459 *EE 354* 4
CSCI 102 2	EE 109L *(CSCI 102)* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE B 4	WRIT340 *WRIT 150* 4	FREE ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Students in the Computer Engineering & Computer Science (CECS) major must declare their track no later than the start of their 5th semester. Students in the Computing Systems track are advised by the Computer Science department.

Students in the Embedded Systems track are advised by the Electrical and Computer Engineering department.

Computer Engineering & Computer Science (Computing Systems)— Begin with CS 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	PHYS 151L* *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L* *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	GE A* 4	GE D* 4	GE B 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 104L, CSCI 170* 4	GE C* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	CSCI 350 *CSCI 201, EE 354, or CSCI 356* 4	CSCI 353 *CSCI 201* 4	**CSCI 401** *CSCI 270 & CSCI 310* or CSCI 404 *CSCI 201, 270* or EE 459LX *EE 354* 4
CSCI 103 *CSCI 102* 4	EE 109L *CSCI 102* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	OPTIONAL ELECTIVE 6	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4	WRIT 340 *WRIT 150* 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Computing Systems) — Begin with CS 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE A* 4	CSCI 170 *CSCI 102* 4	WRIT 150 4	PHYS 151L* *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	GE D* 4	GE B 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4
MATH 125 (GE F)* 4	CSCI 103 *CSCI 102* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 2-4	GE C 4
GESM (GE B)# 4	MATH 126 or MATH 129* *MATH 125* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	CSCI 350 *CSCI 201, EE 354, or CSCI 356* 4	CSCI 353 *CSCI 201* 4	**CSCI 401** *CSCI 270 & CSCI 310* or CSCI 404 *CSCI 201, 270* or EE 459LX 4
CSCI 102L 2	EE 109L *CSCI 102* 4	EE 250 *EE 109, CSCI 103* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE C 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4	EE 354 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Computing Systems) Please see previous page.

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications

STATISTICS & PROBABILITY (4 UNITS)

EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics*
PHYS 152L: Electricity and Magnetism*
or PHYS 161: Advanced Principles of Physics I
PHYS 162: Advanced Principles of Physics II

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

CORE (34 UNITS)

CSCI 102
CSCI 103L
CSCI 104L
CSCI 170
CSCI 270
EE 109
EE 250
EE 354
EE 457

COMPUTING SYSTEMS TRACK (24 UNITS)

CSCI 201
CSCI 350
CSCI 353

TWO OF THE FOLLOWING COURSES:
EE 451
EE 454
EE 477

ONE OF THE FOLLOWING COURSES:
CSCI 401
CSCI 404
EE 459

TECHNICAL ELECTIVES (8 UNITS)

ENGINEERING (2 UNITS)

ENGR 102: Engineering Freshman Academy

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

TECHNICAL ELECTIVES: Refer to major (CECS) requirement webpage.