

Tufts University – School of Engineering

Class of 2028 (requirements as established in the 2024-2025 Bulletin)

Bachelor of Science in Computer Science (BSCS)

Major Requirement

\* Courses that require a letter grade (i.e., no pass/fail), \*\* core courses require a C- or better

The BSCS comprises credit requirements and course requirements as established by the School of Engineering and Department of Computer Science. Students must satisfy the SOE program requirements listed in the Credit Requirements box, as well as fulfill all course requirements. The School of Engineering requirements are shown in italics and fall outside second major double counting rules. Courses EN 1, (ES 2 or CS 11), and (ENG 1 or ENG 3) are required by the School of Engineering and may not be used to satisfy any portion of the Major Requirement. Students receiving credit for both ES 2 and CS11 must apply CS11 toward the School of Engineering requirements. SHU values listed for each course requirement reflect those associated with the corresponding Tufts course. Unless otherwise noted, course requirements may be satisfied with transfer courses having SHU values that are different than those shown here. In all cases, students should enter the SHUs received or earned in the correct SOE-Attribute column for a given course requirement to ensure they meet the credit requirements. For planning purposes, students completing the BSCS requirements with Tufts courses will earn at least 120 SHU.

Mathematics & Natural Sciences*	SHU	SOE Attribute						Term
		C	E	M	NS	HASS	None	
MATH 32 Calculus I	4							
MATH 34 Calculus II or MATH 39 Honors Calculus I-II	4							
MATH 42 Calculus III or MATH 44 Honors Calculus III	4							
CS/MATH 61 Discrete Math or MATH 65 Foundations of higher mathematics **	3							
MATH 70 Linear Algebra or MATH 72 Abstract Lin. Alg. **	3							
BIO-CHEM-PHY Elective (a)	5							
BIO-CHEM-PHY Elective (a)	5							
MNS Elective (b)	≥3							
Prob & Stat Elective (c)	≥3							
Subtotal	≥34	-	-			-		

HASS	SHU	SOE Attribute						Term
		C	E	M	NS	HASS	None	
ENG 1* Expos. Writing or ENG 3	3							
Humanities Elective (d)	≥3							
Social Science Elective (e)	≥3							
Ethics & Social Context Elec. (f)	3-4							
Technical Writing (EM52)	3							
A total of ≥24 SHU of SOE-HASS are required for the degree. List below HASS courses that do not appear in the Breadth Elective Section (see note g)								
Subtotal	≥24	-	-	-	-		-	

Credit Requirements	SOE Attribute						Total
	E	C	M	NS	HASS	None	
SOE Requirements	≥30		≥30		≥24	-	≥120
Student Totals							

Abbreviations:

SHU = Semester Hour Unit

SOE = School of Engineering

C = Courses having attribute SOE-Computing

E = Courses having attribute SOE-Engineering

M = Courses having attribute SOE-Mathematics

NS = Courses having attribute SOE-Natural Sciences

HASS = Course having attribute SOE-HASS (Humanities, Arts, and Social Sciences)

None = Course without SOE attribute

Student and Advisor Notes:

Engineering*	SHU	SOE Attribute						Term
		C	E	M	NS	HASS	None	
EN 1 Applications in Eng.	3							
ES 2 Intro. Computing in Eng. or ENG-CS Elective (h)	≥3							
Subtotal	≥6			-	-	-	-	

Computer Science Core**	SHU	SOE Attribute						Term
		C	E	M	NS	HASS	None	
CS 11 Intro. Comp. Sci.	4							
CS 15 Data Structures	4							
CS 40 Machine Structure & Assembly-Language Prog.	5							
CS 105 or CS 80 Programing Languages	3-5							
CS 160 Algorithms	4							
CS 170 Comp. Theory	3							
Systems Elective (i)	≥3							
Systems Elective (i)	≥3							
CS Elective (j)	≥3							
CS Elective (j)	≥3							
CS Elective (k)	≥3							
CS Elective (l)	≥3							
CS Social Cont. Elective(m)	≥2							
CS 97 Sr. Capstone Proj. I	3							
CS 98 Sr. Capstone Proj. II	3							
Subtotal	≥49							

		SOE Attribute							
Breadth Electives	SHU	C	E	M	NS	HASS	None	Term	
≥6 SHU of Breadth Electives are required for the degree. List courses below (see note n).									
subtotal	≥6								

		SOE Attribute						
Additional Courses	SHU	C	E	M	NS	HASS	None	Term
List below additional courses needed to satisfy the credit requirements.								
subtotal	≥0							

BSCS Notes

- (a) Biology, Chemistry or Physics  
Choose two courses from different departments, chosen from:  
PHY 11, CHEM 1, 11, or 16, BIO 13\* or 14  
\*Students interested in multiple courses in biology should take BIO13+15.  
Note that BIO 13 cannot be taken in the first year, while all courses in CHEM and PHY can be taken then.
- (b) Mathematics & Natural Sciences Elective  
Selected course may not be used to fulfill any other course requirement. Select courses worth at least three credits, from:  
Any course having attribute SOE-Mathematics  
Any course having attribute SOE-Natural Sciences
- (c) Probability & Statistics  
Selected course may not be used to fulfill any other course requirement. Select From:  
MATH 166, ES 56, EE 24, EE 104, BME 141, PHY 153
- (d) Humanities Elective  
At least 3 SHU of Humanities are required. Requirement may not be satisfied with pre-matriculation credits, ENG 1, ENG 3, a course satisfying the Social Sciences Elective (e), or a course satisfying the Ethics & Social Context Elective (f).  
Select From:  
Any course having attribute SOE-HASS-Humanities
- (e) Social Sciences Elective  
At least 3 SHU of Social Sciences are required. Requirement may not be satisfied with pre-matriculation credits, a course satisfying the Humanities elective (d), or a course satisfying the Ethics & Social Context Elective (f), or the Technical Writing course, EM 52.  
Select from:  
Any course having attribute SOE-HASS-Social Sciences
- (f) Ethics & Social Context Elective  
Select from:  
PHIL 24, PHIL 57, or EM 54
- (g) Humanities, Arts or Social Sciences Electives  
Select from:  
Any course having attribute SOE-HASS  
Any course having attribute SOE-HASS-Humanities  
Any course having attribute SOE-HASS-Arts  
Any course having attribute SOE-HASS-Social Sciences
- (h) Engineering or Computing Elective  
Selected course may not be used to fulfill any other course requirement.  
Select any course of 3 SHU or more from:  
Any course having attribute SOE-Computing  
Any course having attribute SOE-Engineering
- (i) Systems Elective:  
Selected course may not be used to fulfill any other course requirement. Select from:  
ES 4, EE 14, EE20, CS 45, 107, 111, 112, 114, 116, 117, 118, 119, 120, 121, 122, 124, 140, 146, 147
- (j) CS Elective  
Selected course may not be used to fulfill any other course requirement.  
Select from:  
CS courses numbered between 100 and 179, excluding CS 153-155
- (k) CS Elective  
Selected course may not be used to fulfill any other course requirement.  
Select from:  
CS courses numbered between 16 and 199, excluding CS 53-55, 61, 97-99, 153-155, and 182-188
- (l) CS Elective  
Selected course may not be used to fulfill any other course requirement.  
Select from:  
CS courses numbered between 16 and 179 excluding CS 53-55, CS 61, CS 93-99, CS 153-155;  
MATH 42, 44, 51, 63, 70, 72, 87, 123, 125, 126, 133, 135, 136, 145, 146, 155, 156, 165, or 166
- (m) CS Social Context Elective  
Selected course may not be used to fulfill any other course requirement.  
Select from:  
CS 27, 28, 55, 116, 120, 139, 155, 182-188
- (n) Breadth Electives beyond the SOE HASS requirement:  
Selected course may not be used to fulfill any other course requirement even the HASS requirement.  
Select from:  
Any course having attribute SOE-HASS  
BME 50 Introduction to Biomedical Engineering  
CEE 32 Engineering for a Sustainable and Resilient Society  
At most one of ME 10, 20, 30, 40, 50  
Any ENP, ENT, or EM course  
Maximum of two computer science internships (CS 99)  
ES 85 Preparation for Cooperative Education  
Maximum of one course from the Experimental College (EXP)  
Maximum of one course from Physical Education (PE)

BSCS Course Selection Guidance

Fall Semester, First Year

Course	SHU	SOE Attribute
EN 1 Introduction to Engineering	3	Engineering
MATH 32 Calculus I (or MATH 39)	4	Mathematics
CHEM-PHY Elective (a) or HASS Elective	3-5	varies with selection
HASS Elective or ENG 1 Expository Writing	3-4	HASS

Semester Total SHU 13-16

Spring Semester, First Year

Course	SHU	SOE Attribute
CS 11 Intro. Computer Science	4	Engineering
MATH 34 Calculus II	4	Mathematics
CHEM-PHY Elective (a) or HASS Elective	3-5	varies with selection
HASS Elective or ENG 1 Expository Writing	3-4	HASS

Semester Total SHU 14-17

Fall Semester, Second Year

Course	SHU	SOE Attribute
CS 15 Data Structures	4	Computing
CS/MATH 61 (or MATH 65)	3	Mathematics
BIO Elective (a) or HASS elective	3	varies with selection
EM 52 Technical and Managerial Communication	3	HASS
MATH 42	4	Mathematics

Semester Total SHU 17

Spring Semester, Second Year

Course	SHU	SOE Attribute
CS 40 Machine Structure & Assembly-Language Prog.	5	Computing
MATH 70 Linear Algebra	3	Mathematics
HASS elective	3	varies with selection
ES 2 Intro. Computing in Eng. or ENG-CS Elective (h)	3-4	varies with selection
CS Elective	3-4	varies with selection

Semester Total SHU 17-19

Fall Semester, Third Year

Course	SHU	SOE Attribute
CS 160 Algorithms	4	Computing
CS or Systems Elective	3-4	varies with selection
CS or Systems Elective	3-4	varies with selection
MNS Elective (b)	3-5	varies with selection
BIO Elective (a) or HASS Elective	3-4	HASS

Semester Total SHU 16-21

Spring Semester, Third Year

Course	SHU	SOE Attribute
CS 105 Programing Languages	5	Computing
Probability & Statistics	3-4	varies with selection
CS or Systems Elective	3-4	varies with selection
HASS Elective	3-4	HASS
Breadth Elective	1-4	varies with selection

Semester Total SHU 15-21

Fall Semester, Fourth Year

Course	SHU	SOE Attribute
CS 97 Senior Capstone Project I	3	Computing
CS 170 Computation Theory	3	Computing
CS or Systems Elective	3-4	varies with selection
Breadth Elective	3-4	varies with selection
Free HASS Elective	3-5	varies with selection

Semester Total SHU 15-19

Spring Semester, Fourth Year

Course	SHU	SOE Attribute
CS 98 Senior Capstone Project II	3	Computing
CS or Systems Elective	3-4	Computing
CS or Systems Elective	3-4	varies with selection
HASS Elective	3-4	HASS
Free Unrestricted Elective, if needed	3-5	varies with selection

Semester Total SHU 15-20