

Overview

The BS in Computer Science at Tulane provides students with core computer science expertise and prepares them for computer science and computing technology jobs in industry as well as for advanced academic training in graduate programs.

More info about the Department of Computer Science and the program is available on the department webpage.

Requirements Coursework

The program comprises 17 courses. These requirements total 55-58 credit hours and are expected to be completed over eight semesters. The starting class for the program is CMPS 1500 Intro to Computer Science I (4 c.h.).

Curriculum		
Course ID Mathematics ¹	Title	Credits
Calculus		4-6
MATH 1210	Calculus I	
OR		
MATH 1150	Long Calculus I	
MATH 1160	Long Calculus II	
OR		
MATH 1310	Consolidated Calculus	
CMPS 2170	Intro to Discrete Math same as MATH 2170	3
MATH 3090	Linear Algebra it is recommended to complete MATH 3090 before starting CMPS electives.	4
Probability and Statistics ²		3-4
Choose one Students who plan on taking courses in	the fields of artificial intelligence and machine learning are encouraged to take MATH 1230 or MATH 3070	
MATH 1110	Probability & Statistics I	
MATH 1230	Statistics For Scientists	
MATH 3070	Intro To Probability	
Required First and & Second-Year Courses		
CMPS 1500	Intro to Computer Science I	4
CMPS 1600	Intro to Computer Science II	4
CMPS 2200	Intro to Algorithms	4
CMPS 2300	Intro to Comp Sys & Networking	4
Systems Requirement		3
Choose one		
CMPS 3510	Computer Organization	
CMPS 4750	Computer Networks	
CMPS 4770	Operating Systems	
ENGP 3140	Digital Logic Systems	
Al/Algorithms Requirement		3
Choose one		
CMPS 3140	Intro Artificial Intelligence	
CMPS 3240	Intro to Machine Learning	
CMPS 3340	Introduction to Deep Learning	
CMPS 3250	Theory of Computation	
CMPS 3260	Advanced Algorithms	
CMPS 3130	Intro Computational Geometry	
CMPS 3210	Algs Comp Struct Bio	
ENGP 3730	Signals and Systems	



Electives

Select five CMPS elective Algoritms) and this elective	s at the 3000-level or above. A courses may not count towards both an area requirement (e.g, Systems or Al/ ve requirement. ^{ENGP 3140} Digital Logic Systems and ENGP/BMEN 3730 Signals and Systems may count as electives.	
Capstone ³		4
Complete both Eligible stude	ents may complete an honors thesis in Computer Science to fulfill the capstone requirement. These students must arrange for their	
readers and a topic in the semes	ster before starting their Honors Thesis. Successful completion of CMPS 4990 and CMPS 5000 will fulfill this requirement. Students are	
eligible if they have a cumulative GPA of 3.4 or above and a cumulative GPA across all courses counting towards their Computer Science major of 3.5 or above.		
CMPS 4010	Capstone Project I	

CMPS 4020	Capstone Project II	
Total Credit Hours		55-58

Total Credit Hours

¹ The mathematics requirements, four foundational core courses, and the Systems and Al/algorithms requirements should be completed before the student's senior/final year at Tulane.

- ² Students who plan on taking courses within the fields of artificial intelligence or machine learning are encouraged to take MATH 1230 Statistics for Scientists or MATH 3070 Intro to Probability prior to doing so. Students are also encouraged to complete MATH 3090 Linear Algebra before starting their electives, especially AI, ML, or graphics courses.
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CMPS 4010 Capstone Project I (2 c.h.) and CMPS 4020 Capstone Project II (2 c.h.) are each offered once a year, in the fall and in the spring, respectively. The capstone is usually completed in the senior year. A two-semester Honors Thesis in Computer Science can be used in place of the Capstone Project requirement. Students embarking on a Computer Science Honors Thesis must have an overall cumulative GPA of 3.4 or higher and a cumulative GPA across all courses required for the computer science major of 3.5 or higher. Students wishing to complete an Honors Thesis should coordinate with their major advisor in their junior year. The Honors Thesis readers and topic must be decided before the senior year. For more information about the Honors Thesis, see the Honors Thesis webpage. (https://enrichment.tulane.edu/honors-thesis-0/)

Academic requirements

In order to graduate with the BS in computer science, the student should achieve a cumulative GPA of 2.8 or above in all courses that are required for the major. To ensure that they are on track to graduate, students enrolling in senior capstone should have a cumulative GPA across the five introductory core courses of 2.8 or above.

Declaring the major

To declare the major in computer science, please complete and sign the major declaration form and email it to Ms. Debbie Ramil (dramil1@tulane.edu), who will assign you a major advisor, obtain the corresponding advisor's and the departmental chair's signatures for your form, and return the form to you. The completed form needs to be submitted to the Advising Office. When the major declaration form is processed, you will be added to the CS students mailing list. In order to enhance your CS education, you may also wish to join computing-focused student organizations, such as Cookies and Code, Women in Technology, and Girls Who Code. Their info is on WaveSync.

Example course sequence and timeline

4-year plan of study (recommended):

Year 1		
Fall		Credit Hours
CMPS 1500	Intro to Computer Science I	4
MATH 1210	Calculus I	4
MATH 3090	Linear Algebra	4
	Credit Hours	12
Spring		
CMPS 1600	Intro to Computer Science II	4
CMPS 2170	Intro to Discrete Math	3
MATH 1230	Statistics For Scientists	4
	Credit Hours	11
Year 2		
Fall		
CMPS 2200	Intro to Algorithms	4

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CMPS 2300	Intro to Comp Sys & Networking	4
	Credit Hours	8
Spring		
CMPS 3510	Computer Organization (Systems Requirement)	3
CMPS 3140	Intro Artificial Intelligence (AI/Algorithms Requirement)	3
	Credit Hours	6
Year 3		
Fall		
CMPS elective 1		3
CMPS elective 2		3
	Credit Hours	6
Spring		
CMPS elective 3		3
CMPS elective 4		3
	Credit Hours	6
Year 4		
Fall		
CMPS elective 5		3
CMPS 4010	Capstone Project I	2
	Credit Hours	5
Spring		
CMPS 4020	Capstone Project II	2
	Credit Hours	2
	Total Credit Hours	56

3-year plan of study

While it is recommend that students complete the major over eight semesters, for transfer students or students in unusual situations, it is possible to complete the major beginning their studies in their 2nd year. Below is a suggested timeline. Students planning on completing the major on an accelerated timeline should reach out to their major advisor to review their plan.

Year 2		
Fall		Credit Hours
CMPS 1500	Intro to Computer Science I	4
MATH 1210	Calculus I	4
MATH 3090	Linear Algebra	4
	Credit Hours	12
Spring		
CMPS 1600	Intro to Computer Science II	4
CMPS 2170	Intro to Discrete Math	3
MATH 1230	Statistics For Scientists	4
	Credit Hours	11
Year 3		
Fall		
CMPS 2200	Intro to Algorithms	4
CMPS 2300	Intro to Comp Sys & Networking	4
CMPS elective 1		3
	Credit Hours	11
Spring		
CMPS 3510	Computer Organization (Systems Requirement)	3
CMPS 3140	Intro Artificial Intelligence (AI/Algorithms Requirement)	3



CMPS elective 2

	Credit Hours	9
Year 4		
Fall		
CMPS elective 3		3
CMPS elective 4		3
CMPS 4010	Capstone Project I	2
	Credit Hours	8
Spring		
CMPS elective 5		3
CMPS 4020	Capstone Project II	2
	Credit Hours	5
	Total Credit Hours	56

Academic prerequisites

The program is open to all students willing to put time and work into becoming computing professionals. It does not assume that students have any previous computer science background. Many of our graduates have never programmed a computer before joining their first computer science class. The department holds several help sessions most days of the week to provide help to students when they have questions while working on computer science homework.

Prior computing experience

Advanced Placement (AP) computer science courses taken by a student in high school usually transfer toward overall college credit. (This is decided by the Tulane University Office of Undergraduate Admissions.) These courses do not have much overlap with our introductory courses and hence don't count toward the major.

If a student can demonstrate solid knowledge of the material covered in one of the required courses, after consultation with their faculty advisor, they can "skip" the required course and replace it with a CMPS elective of their choice instead. The minimum total number of completed hours for the BS in Computer Science should remain 44.

Transfer coursework

Transfer of college-level courses follows the standard Tulane credit transfer procedure. There is no special department-level limit on the number of courses that can transfer; we adhere to the limit established by Newcomb-Tulane College. In order for a course from another university to count for the major, it should match a corresponding Tulane course in content and/or complexity; mode of delivery (online, in-person, hybrid) doesn't affect this evaluation. Computing courses on subjects not offered by Tulane might be transferable. Students should confirm with the Department of Computer Science whether the course would transfer as a course for the major before registering.

Study abroad

With advanced planning, it may be possible to study abroad and complete the major. Students planning on studying abroad should reach our to their major advisor to ensure they will fulfill all requirements for the major. Before taking a foreign course, students should confirm with the Department of Computer Science whether that course can transfer and, if so, get it pre-approved. Their major advisor can guide them in this process.

Programming languages

We often get asked what programming languages we teach. In fact, we teach principles, concepts, and problem-solving approaches rather than specific languages. In CMPS 1500, student learn Python. In CMPS 1600, students learn Java, C, and C++. The elective courses use a language that's necessary to achieve the tasks of the course (e.g. Javascript, Scala, Ruby, etc.). Our successful students get used to learning new languages and are able to study the basics of any computer language on their own.

Computer specifications

Another common area of inquiry is about buying a computer. It is helpful and convenient to have a laptop. We don't have a computer lab, and students work on their own laptops to complete most programming assignments. Model and make don't matter; any modern laptop with Wi-Fi and a battery works.

Program String & Field of Study: SEBS_UG, CSBS

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Contact

For more information, contact the School of Science and Engineering (https://sse.tulane.edu/about/contact/).