

West Texas A&M University
Advising Services
Degree Checklist
2023-2024

(For assistance completing this form, contact Advising Services at 806-651-5300)

NAME: _____ **WT ID:** _____ **DATE:** _____

Computer Science—Data Science Track
Engineering and Computer Science
ECS Building, Room 119 651-5257

CORE CURRICULUM COURSES: 42 HOURS ♦		HRS	
Communication (Core 10)			
ENGL 1301 Intro. to Academic Writing & Argumentation OR ENGL 1311 Writing About Ideas	3		
COMM 1315, 1318, or 1321**	3		
Mathematics (Core 20)			
See University Core Requirements below	(4)		
Life and Physical Sciences (Core 30)			
See University Core Requirements below	(6)		
Language, Philosophy and Culture (Core 40)			
ANTH 2351, ENGL 2321*, 2326*, 2331*, 2341*, 2343*; HIST 2311, 2323, 2372; MCOM 1307; PHIL 1301, 2374; SPAN 2311*, 2312*/***, 2313*, 2315*, or 2371 Choose 1	3		
Creative Arts (Core 50)			
ARTS 1301, 1303, 1304; DANC 2303; MUSI 1306, 1307 (for music majors), 1310; or THRE 1310 Choose 1	3		
American History (Core 60)			
HIST 1301, 1302, 2301, 2381, 2382 Choose 2	6		
Government/Political Science (Core 70)			
POSC 2305 and 2306	6		
Social and Behavioral Sciences (Core 80)			
AGBE 2317*; COMM 2377; CRIJ 1301; ECON 2301, 2302; GEOG 1302; PSYC 2301; SOCI 1301 Choose 1	3		
Component Area Option (Core 90)			
See University Core Requirements below	(6)		
COMPUTER SCIENCE—DATA SCIENCE TRACK REQUIREMENTS: 94 HOURS			
<ul style="list-style-type: none"> • A grade of "C" or better must be earned in all courses required for major. • A grade of "C" or better is mandatory for all prerequisites listed for ECS courses required for Computer Science majors. 			
UNIVERSITY CORE REQUIREMENTS: 15 HOURS ♦			
CORE 20			
MATH 2413*[3] Calculus I	3		
CORE 30			
CHEM 1411*[3] and 1412*[3] OR PHYS 2425*[3] and 2426*[3]	6		
CORE 90			
ENGL 1302* Academic Writing and Research OR ENGL 1312* Writing About Ideas OR ENGL 2311* Introduction to Professional and Technical Communication	3		
CORE 90			
MATH 2413[1] AND CHEM 1411L[1] and 1412L[1] OR PHYS 2425L[1] and 2426L[1]	3		
MAJOR REQUIREMENTS: 51 HOURS			
CS 1301 Introduction to Computer Science	3		
CS 1337, 1337L Programming Principles I OR CIDM 2315 Programming Business Applications	3		
CS 2325*, 2325L Computer Organization and Assembly Language	3		
CS 2337*, 2337L Programming Principles II	3		
CS 3303* Object-Oriented Software Development	3		
CS 3305* Data Structures and Algorithms	3		
CS 3307* Algorithm Design and Analysis	3		

Bachelor of Science Degree
BS.CS.DATA.SCI (307)

CS 3310* Programming Languages	3		
CS 3340* Software Engineering OR CIDM 4360* Object-Oriented Analysis and Design	3		
CS 3352* Operating Systems and Networking	3		
CS 3372* Net-Centric Computing OR CIDM 3385* Network Security and Data Communications	3		
CS 4325* Computer Architecture	3		
CS 3350* Database Systems Use, Design and Implementation OR CIDM 3350* Database Systems Design	3		
CS 4360* Approaches to Internet and Computer Networks Security	3		
CS 4385* Concurrency and Distributed Systems	3		
CS 4390* Senior Capstone Project I	3		
CS 4391* Senior Capstone Project II	3		
REQUIRED MATH COURSES: 16 HOURS			
MATH 2321* Discrete Structures I	3		
MATH 2322* Discrete Structures II	3		
MATH 2414* Calculus II	4		
Take 6 hours from:			
MATH 3311* Linear Algebra	6		
MATH 3321* Probability			
MATH 4310* Modern Algebra with Cryptography			
MATH 4361* Statistics for the Sciences			
DATA SCIENCE TRACK: 12 HOURS			
CS 3341* Introduction to Data Science	3		
CS 3387* Artificial Intelligence	3		
CS 4341* Data Science I	3		
CS 4342* Data Science II	3		
TOTAL HOURS REQUIRED TO COMPLETE DEGREE	121		

* Indicates prerequisites—see catalog for more information.

** Recommended.

*** Or an equivalent course (second year, second semester) in a foreign language.

NOTE: This is NOT a degree plan. All undergraduate students must request an official degree plan from their academic dean's office by the time they have completed 30 credit hours.

WTAMU ADVISING SERVICES – 2023-2024 Curriculum Guide

Major: Computer Science – Data Science Track, B.S.

Major Code: 307

Year 1: Fall	
CORE 10 (Communication) – ENGL 1301 or 1311	3
CS 1301 Introduction to Computer Science	3
CORE – See checklist for options ¹	3
CORE – See checklist for options ¹	3
CORE – See checklist for options ¹	3
Total:	15

Year 2: Fall	
CS 2337/2337L Programming Principles II	3
MATH 2321 Discrete Structures I	3
CORE 30 (Life & Phys. Sci.) – CHEM 1411 or PHYS 2425	3
CORE 90 (Component Area Option) – CHEM 1411L or 2425L	1
MATH 2414 Calculus II	4
CORE – See checklist for options ¹	3
Total:	17

Year 3: Fall	
CS 3307 Algorithm Design and Analysis	3
CS 3303 Object-Oriented Software Development	3
CS 3352 Operating Systems and Networking	3
CS 3341 Introduction to Data Science	3
CS 4325 Computer Architecture	3
Total:	15

Year 4: Fall	
CS 4360 Approaches to Internet & Computer Networks Security	3
Take 2 nd of 2 courses from: MATH 3311, 3321, 4310, or 4361	3
CS 3350 Database Systems Use, Design & Implementation or CIDM 3350 Database Systems Design	3
CS 4390 Senior Capstone Project I	3
CS 4341 Data Science I	3
Total:	15

Year 1: Spring	
CS 1337/1337L Programming Principles I or CIDM 2315 Programming Business Applications	3
CORE 20 (Mathematics) – MATH 2413 Calculus I	4
CORE 90 (Component Area Option) – ENGL 1302, 1312, or 2311	3
CORE – See checklist for options ¹	3
CORE – See checklist for options ¹	3
Total:	16

Year 2: Spring	
CS 2325/2325L Computer Organization & Assembly Languages	3
CS 3305 Data Structures and Algorithms	3
CORE 30 (Life & Phys. Sci.) – CHEM 1412 or PHYS 2426	3
CORE 90 (Component Area Option) – CHEM 1412L or PHYS 2426L	1
CORE – See checklist for options ¹	3
MATH 2322 Discrete Structures II	3
Total:	16

Year 3: Spring	
Take 1 st of 2 courses from: MATH 3311, 3321, 4310, or 4361	3
CS 3340 Software Engineering or CIDM 4360 Object-Oriented Analysis and Design	3
CS 3372 Net-Centric Computing or CIDM 3385 Network Security & Data Communications	3
CS 3310 Programming Languages	3
CS 3387 Artificial Intelligence	3
Total:	15

Year 4: Spring	
CS 4385 Concurrency & Distributed Systems	3
CS 4342 Data Science II	3
CS 4391 Senior Capstone Project II	3
CORE – See checklist for options ¹	3
Total:	12

¹ **CORE:** Computer Science majors are required to take specific courses for Core 20, Core 30, and Core 90. For all other categories, they may select from any available options (see degree checklist). Apart from the major-specific core requirements, there is no set order in which core courses must be taken.

Identified Marketable Skills	Top Three Local Employers or Industries/Professional Programs/Possible Career Opportunities
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Additional notes:

- The core curriculum must total exactly 42 hours; excess hours must be moved to the major as an elective or a major requirement and stay within the 120-hour requirement or approved total submitted to the Coordinating Board for degree requirements. Some majors specify particular courses to meet core curriculum requirements when options are available.
- At least 36 hours of advanced work (3000- or 4000-level courses) for which tuition is paid must be earned at WTAMU. A maximum of six semester hours in religion (RELI) and six semester hours in physical education (PHED) courses can count toward a baccalaureate degree.