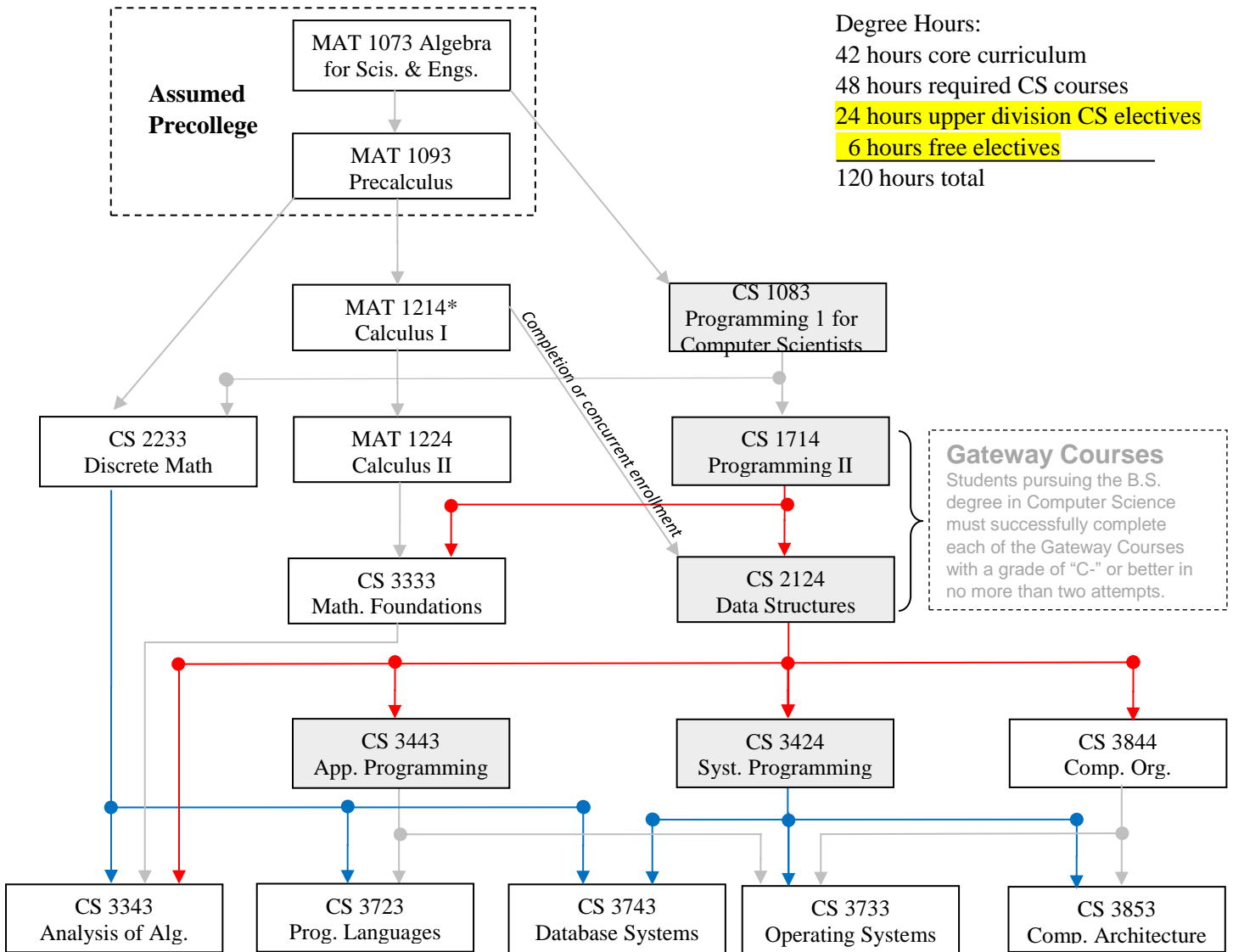


Sequence of CS Core Courses and Concentrations (UTSA 2020-2022 Catalog)



Degree Hours:
 42 hours core curriculum
 48 hours required CS courses
 24 hours upper division CS electives
 6 hours free electives
 120 hours total

Gateway Courses
 Students pursuing the B.S. degree in Computer Science must successfully complete each of the Gateway Courses with a grade of "C-" or better in no more than two attempts.

<p>Concentration in Cyber Security</p> <p>CS 3113 Principles of Cyber Security</p> <p>Select three of:</p> <ul style="list-style-type: none"> CS 3433 Computer & Info. Security CS 4353 Unix & Network Security CS 4363 Cryptography CS 4453 Penetration Testing CS 4473 Cryptocurrencies & Bitcoins CS 4493 Adv. Topics in Cyber Security CS 4643 Cellular & Mobile Technologies CS 4653 Software & Malware Reverse Engineering CS 4663 Distributed & Cloud Systems Security CS 4673 Cyber Operations CS 4683 Secure Software Development & Analysis 	<p>Concentration in Cloud & Systems</p> <p>CS 4843 Cloud Computing</p> <p>Select three of:</p> <ul style="list-style-type: none"> CS 3873 Computer Networks CS 4243 Large-Scale Data Management CS 4633 Simulation Techniques CS 4663 Distributed & Cloud Syst. Sec. CS 4713 Compiler Construction CS 4823 Parallel Programming CS 4833 Embedded Systems CS 4853 Advanced Syst. Programming CS 4863 Dist. Computing & Systems CS 4963 Advanced Topics in Systems & Cloud 	<p>Concentration in Software Engineering</p> <p>CS 3773 Software Engineering</p> <p>Select two of:</p> <ul style="list-style-type: none"> CS 4393 User Interfaces CS 4413 Web Technologies CS 4613 Senior Design I CS 4623 Senior Design II CS 4683 Secure Software Dev. & Analysis CS 4723 Software Valid. & Qual. Assurance CS 4743 Enterprise Software Engineering CS 4773 Object-Oriented Systems CS 4783 Advanced Software Engineering 	<p>Concentration in Data Science</p> <p>CS 3753 Data Science</p> <p>Select two of:</p> <ul style="list-style-type: none"> CS 3793 Artificial Intelligence CS 4223 Bioinformatics & Big Data CS 4233 Comp. Biology & Bioinformatics CS 4243 Large-Scale Data Management CS 4253 Machine Learning CS 4263 Deep Learning CS 4373 Data Mining CS 4973 Advanced Topics in Data Science
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All courses in concentrations are elective courses. See catalog for more details about prerequisites.
 *MAT 1214 may be used to satisfy the core requirement in Mathematics as well as a major requirement

Computer Science Electives (UTSA 2020-2022 Catalog)

(Followings are for CS majors)

CS 3113	Principles of Cyber Security
CS 3433	Computer and Information Security
CS 3523	Windows Systems Programming
CS 3753	Data Science
CS 3773	Software Engineering
CS 3793	Artificial Intelligence
CS 3873	Computer Networks
CS 4223	Bioinformatics and Big Data
CS 4233	Computational Biology and Bioinformatics
CS 4243	Large-Scale Data Management
CS 4253	Machine Learning
CS 4263	Deep Learning
CS 4313	Automata, Computability, and Formal Languages
CS 4353	Unix and Network Security
CS 4363	Cryptography
CS 4373	Data Mining
CS 4383	Computer Graphics
CS 4393	User Interfaces
CS 4413	Web Technologies
CS 4423	Game Development
CS 4453	Penetration Testing
CS 4463	Steganography
CS 4473	Cryptocurrencies and Bitcoins
CS 4483	Cyber Security Foundations and Practice
CS 4493	Advanced Topics in Cyber Security
CS 4593	Topics in Computer Science
CS 4613	Senior Design I
CS 4623	Senior Design II
CS 4633	Simulation Techniques
CS 4643	Cellular and Mobile Technologies
CS 4653	Software and Malware Reverse Engineering
CS 4663	Distributed and Cloud Systems Security
CS 4673	Cyber Operations
CS 4683	Secure Software Development and Analysis
CS 4713	Compiler Construction
CS 4723	Software Validation and Quality Assurance
CS 4743	Enterprise Software Engineering
CS 4773	Object-Oriented Systems
CS 4783	Advanced Software Engineering
CS 4823	Parallel Programming
CS 4833	Embedded Systems
CS 4843	Cloud Computing
CS 4853	Advanced Systems Programming
CS 4863	Distributed Computing and Systems
CS 4883	Senior Thesis I.
CS 4893	Senior Thesis II.
CS 4913	Independent Study.
CS 4933	Internship in Computer Science.
CS 4953	Special Studies in Computer Science.
CS 4963	Advanced Topics in Systems and Cloud
CS 4973	Advanced Topics in Data Science
CS 4993	Honors Research

(Followings are for non-CS majors)

CS 1023	Cultural Implications of the Information Society
CS 1033	Microcomputer Applications
CS 1063	Introduction to Computer Programming I
CS 1153	Game Programming
CS 1173	Data Analysis and Visualization (MATLAB)
CS 2073	Computer Programming with Eng. Applications
CS 2153	Game Design