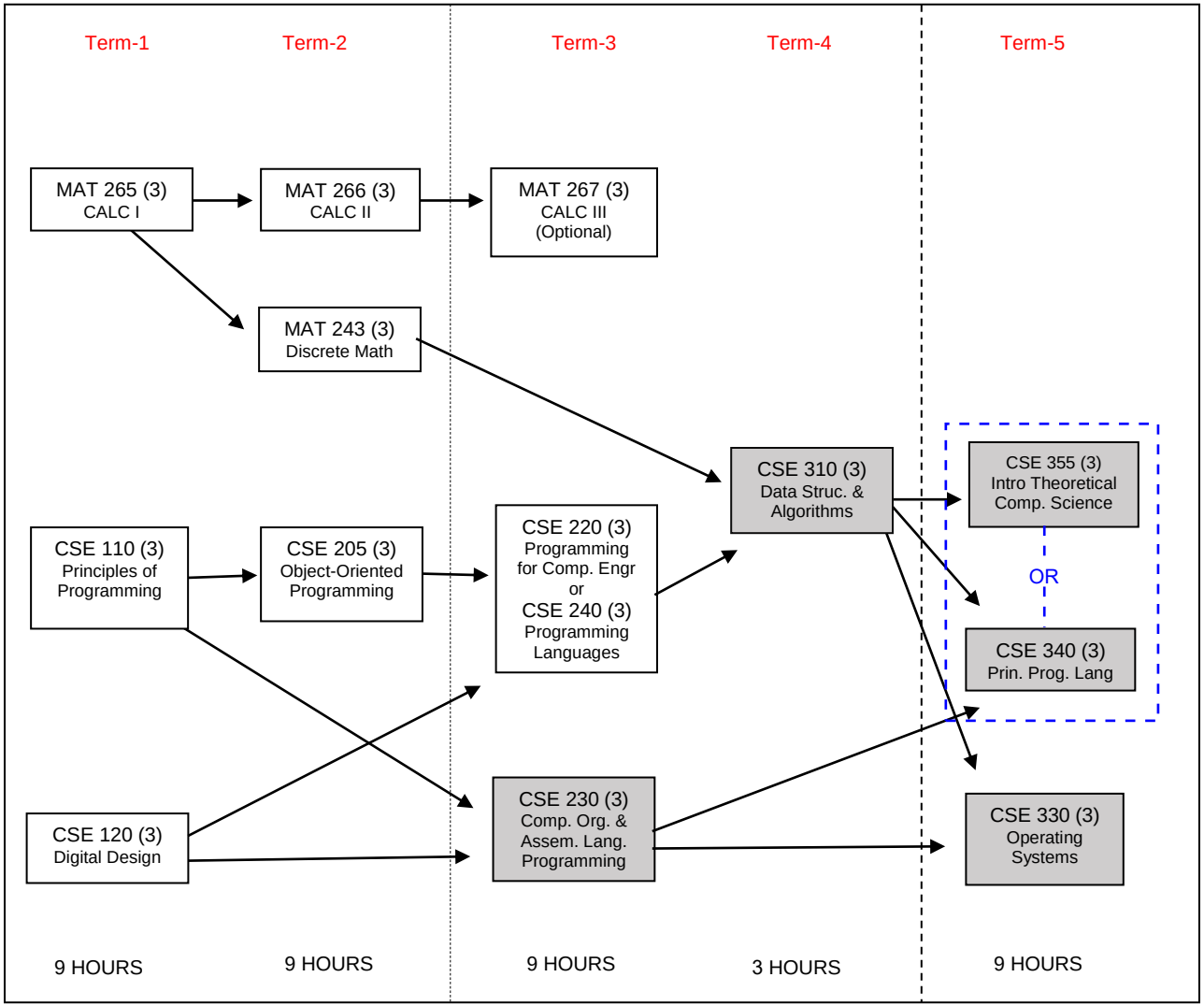
Computer Science, MCS, MS and Ph.D.
Deficiency Courses



Extensive knowledge in shaded courses is required for MCS, MS, and Ph.D. admission.

Prerequisite →

Additional Admission Requirements
(See website for details)

1. Transcripts/Academic Credentials.
2. Official GRE Test Scores.
3. Three letters of recommendation
4. Statement of Purpose
5. If applicable, English Proficiency (i.e. TOEFL).
6. GPA Requirement is 3.25 or higher in the last 60 hours of the undergraduate degree.

Ready to apply?

Apply now through the Graduate Admission online graduate application (https://webapp4.asu.edu/dgsadmissions/).

Rev. 6/2019

Term 1

CSE 110: Principles of Programming - Concepts of problem solving using an object-oriented programming language, algorithm design, structured programming, fundamental algorithms and techniques.

MAT 265: Calculus for Engineers I-Limits and continuity, differential calculus of functions of one variable, introduction to integration.
Prerequisite(s): MAT 170 or 171 with C or better, OR Mathematics Placement Test with a score of 60% or higher; the Advanced Math Placement Test with a score of 38 or higher, OR ALEKS score of 76 or higher;

CSE 120: Digital Design Fundamentals-Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits.

Term 2

CSE 205: Object-Oriented Programming & Data Structures-Problem solving by programming with an object-oriented programming language. Introduces data structures. Overview of computer science topics.
Prerequisite(s): CSE 110 with C or better

MAT 266: Calculus for Engineers II - Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series.
Prerequisite(s): MAT 265 or 270 with C or better

MAT 243: Discrete Mathematical Structures-Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.
Prerequisite(s): MAT 210, 251, 265, or 270 with C or better

Term 3

MAT 267: Calculus for Engineers III -Vector-valued functions of several variables, partial derivatives, and multiple integration.
Prerequisite(s): MAT 266 or 271 with C or better

CSE 230: Computer Organization & Assembly Language Programming-Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling.
Prerequisite(s): CSE 110 and 120 with C or better

CSE 220: Programming for Computer Engineering-Introduction to C/C++, systems programming, and concurrency.
Prerequisite(s): CSE 205 with C or better
or
CSE 240: Introduction to Programming Languages – Introduces the procedural, object-oriented, functional and declarative languages.
Prerequisite(s): CSE 205 with C or better

Term 4

CSE 310: Data Structures and Algorithms-Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, and external sorting.
Prerequisite(s): CSE 220 or 240 with C or better; MAT 243 with C or better

Term 5

CSE 330: Operating Systems-Operating system structure and services, processor scheduling, concurrent processes, synchronization techniques, memory management, virtual memory, input/output, storage management, and file systems. *Previously CSE 430
Prerequisite(s): CSE 230 with C or better; CSE 310 with C or better

CSE 340: Principles of Programming Languages-Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms.
Prerequisite(s): CSE 230 with C or better; CSE 310 with C or better
or
CSE 355: Introduction to Theoretical Computer Science-Introduces formal language theory and automata, Turing machines, decidability/undecidability, recursive function theory, and complexity theory.
Prerequisite(s): CSE 310 with C or better