**CS Undergraduate Prerequisite Structure**

1110: Introduction to Computing Using Python
1112: Introduction to Computing Using MATLAB
1132: Short Course in MATLAB
1133: Short Course in Python
1380: Data Science for All
2024: C++ Programming

2110: Object-Oriented Programming and Data Structures
2112: Object-Oriented Design and Data Structures - Honors
2770: Excursions in Computational Sustainability
2800: Discrete Structures
2802: Discrete Structures - Honors
2850: Networks

3110: Data Structures and Functional Programming
3152: Introduction to Computer Game Architecture
3220: Introduction to Scientific Computation
3410: Computer System Organization and Programming
3420: Embedded Systems (prereq: ENGRD 2300, not shown)
4110: Programming Languages and Logics
4120: Introduction to Compilers
4152: Advanced Topics in Computer Game Architecture
4154: Analytics-driven Game Design
4160: Formal Verification
4220: Numerical Analysis: Linear and Nonlinear Problems
4320: Introduction to Database Systems
4410: Operating Systems
4450: Introduction to Computer Networks
4620: Introduction to Computer Graphics
4670: Introduction to Computer Vision
4700: Foundations of Artificial Intelligence
4740: Natural Language Processing
4750: Foundations of Robotics
4780: Machine Learning for Intelligent Systems
4786: Machine Learning for Data Science
4787: Principles of Large-Scale Machine Learning
4810: Introduction to Theory of Computing
4820: Introduction to Analysis of Algorithms
4850: Mathematical Foundations for the Information Age
4860: Applied Logic

**core classes**

**starred (*) courses** have at least 1 MATH pre- or co-requisite

See Roster.

**bold & colored courses** (with corresponding arrows) indicate prerequisites

co-req

A- or better in **2110** and **2800** satisfies **3110** prereq

See Roster.