**INTRODUCTORY REQUIREMENTS**

**Calculus:** MATH 19A (FWS) ___ + 19B (FWS) ___  
**Linear Algebra:** MATH 21 (FWS) ___  
**Multivariable Calculus:** MATH 23A (FWS) ___ + MATH 23B (FWS) ___

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**ADVANCED REQUIREMENTS**

**Math:**  
MATH 24 Differential Equations (S) ___  
MATH 100 Introduction to Proof and Problem Solving (FWS) ___  
MATH 110 Introduction to Number Theory (FW) ___  
MATH 111A Algebra (FW) ___

**Analysis:** ONE from the following...  
MATH 103A Complex Analysis (WS) ___  
MATH 105A Real Analysis (FW) ___

**Computational:** ONE from the following...  
MATH 145/L Introduction to Chaos Theory (*) ___  
AMS 114 Introduction to Dynamical Systems (formerly AMS 146) (S) ___  
AMS 147 Computational Methods and Applications (W) ___

**Electives:** TWO from the following...  
AMS 114 Introduction to Dynamical Systems (formerly AMS 146) (S) ___  
AMS 131 Introduction to Probability Theory (FS) ___  
AMS 147 Computational Methods and Applications (W) ___  
BME 110 Computational Biology Tools (FS) ___  
CMPE 107 Mathematical Methods of Systems Analysis Stochastic (FW) ___  
CMPE 108 Data Compression (W) ___  
CMPE 117 Embedded Software (*) ___  
CMPE 153 Digital Signal Processing (*) ___  
CMPE 177 Applied Graph Theory and Algorithms (*) ___  
CMPS 101 Algorithms and Abstract Data Types (FWS) ___  
CMPS 102 Introduction to Analysis of Algorithms (S) ___  
CMPS 104A Fundamental of Compiler Design I (F) ___  
CMPS 109 Advanced Programming (WS) ___  
CMPS 112 Comparative Programming Languages (W) ___  
CMPS 122 Computer Security (*) ___  
CMPS 130 Computational Models (F) ___  
CMPS 132 Computability & Computational Complexity (W) ___  
CMPS 142 Machine Learning and Data Mining (F) ___  
EE 103 Signals and Systems (FS) ___  
EE 130 Introduction to Optoelectronics and Photonics (F) ___  
EE 135/L Electromagnetic Fields and Waves Laboratory (W) ___  
EE 151 Communications Systems (W) ___  
EE 154 Feedback Control Systems (F) ___

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**COMPREHENSIVE REQUIREMENT**

MATH 194 Senior Seminar (WS) ___ OR MATH 195 Senior Thesis (FWS) ___