# Mathematics B.A. - Computational Mathematics

**2014/15**

| Name: ___________________________ | Date: ___________________________ |
| ID#: ___________________________ |

(Quarter offered: F=Fall, W=Winter, S=Spring, *= Not offered this year, IS=Independent Study)

**NOTE:** Courses appearing in more than one category can fulfill only one requirement.

## Introductory Requirements

- **Calculus:**
  - MATH 19A (FWS) ___ + 19B (FWS) ___
- **Linear Algebra:**
  - MATH 21 (FWS) ___
- **Vector Calculus:**
  - MATH 23A (FWS) ___ + MATH 23B (FWS) ___
- **Ordinary Differential Equations:**
  - Math 24 (S) ___

## Advanced Requirements

- **Math:**
  - MATH 100 Introduction to Proof and Problem Solving (FWS) ___

**NOTE:** To declare the Mathematics B.A., students must complete the following with a C or better:

- MATH 19A/B, 21, 23A/B, 100
- MATH 110 Introduction to Number Theory (FW) ___
- MATH 111A Algebra (FW) ___ OR Math 117 Advanced Linear Algebra (F) ___

- **Differential Equations:**
  - ONE from the following...
    - Math 106 Systems of Ordinary Differential Equations (W) ___
    - Math 107 Partial Differential Equations ___ (*)

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

- **Computational:**
  - ONE from the following...
    - Math 106 Systems of Ordinary Differential Equations (W) ___
    - MATH 145/L Introduction to Chaos Theory (*) ___
      - (cannot receive credit for both MATH 145 and AMS 114)
    - AMS 114 Introduction to Dynamical Systems (formerly AMS 146) (W) ___
      - (cannot receive credit for both AMS 114 and MATH 145)

- **Electives:**
  - TWO from the following...
    - Any AMS course numbered 100 and above ___
    - BME 110 Computational Biology Tools (FW) ___
    - CMPE 107 Mathematical Methods of Systems Analysis Stochastic (FW) ___
    - CMPE 108 Data Compression (*) ___
    - CMPE 153 Digital Signal Processing (FS) ___
    - 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 (W) ___
    - CMPS 130 Computational Models (FW) ___
    - CMPS 132 Computability & Computational Complexity (S) ___
    - CMPS 142 Machine Learning and Data Mining (W) ___
    - EART 172 Geophysical Fluid Dynamics (S) ___
    - ECON 113 Introduction to Econometrics (FWS) ___
    - EE 103 Signals and Systems (FS) ___
    - EE 130 Introduction to Optoelectronics and Photonics (W) ___
    - EE 135/L Electromagnetic Fields and Waves Laboratory (W) ___
    - EE 151 Communications Systems (W) ___
    - EE 154 Feedback Control Systems (F) ___
    - PHYS 115 Computational Physics (S) ___

## Disciplinary Communication Requirement

- Satisfied by the successful completion of MATH 100 and 194 or 195.

**NOTE:** This requirement MUST be completed at UCSC.

## Comprehensive Requirement

- MATH 194 Senior Seminar (WS) ___ OR MATH 195 Senior Thesis (IS) ___