

# Department of Mathematics, University of California, San Diego

## PRELIMINARY DEGREE CHECK MAJOR in MATHEMATICS-COMPUTER SCIENCE

Name: \_\_\_\_\_ PID#: \_\_\_\_\_ Today's Date: \_\_\_\_\_  
 Quarter Entered UCSD: \_\_\_\_\_ Graduating Quarter: \_\_\_\_\_ Major GPA: \_\_\_\_\_

### Lower-Division Requirements

**Mathematics (24 units total):**

- 1) Math 20A Calc for Science & Eng
- 2) Math 20B Calc for Science & Eng
- 3) Math 20C Calc & Analytical Geom.
- 4) Math 20D Intro to Diff. Equations
- 5) Math 20E Vector Calculus
- 6) Math 20F Linear Algebra

**Computer Science:**

- 1) One of the following:
  - CSE 11 Intro to Comp Sci: Java (Accelerated Pace)
  - CSE 8A-B: Intro to Computr Science: Java
- 2) CSE 12 Data Struct. & Object-oriented Prog.
- 3) CSE 30 Computer Organization & Systems

The Mathematics Department requires that students complete the required lower division mathematics courses with a minimum GPA of 2.5 before acceptance into the major will be granted.

### Upper-Division Requirements

**Requirements:**

- \* Math 109 Mathematical Reasoning
- \* Math 103A-B Modern Applied Algebra (or Math 100A-B) (Complete by end junior year)
- \* Math 166 Theory of Computability (or CSE 105)
- \* Math 176 Advanced Data Structures (or CSE 100)
- \* Math 180A Introduction to Probability or Math 183 Stat methods
- \* Math 184 Mathematical Foundations of Computer Science
- \* Math 188 Design & Analysis of Algorithms (or CSE 101)
- \* Any eight units from List A:
  - List A
  - Math 170A Numerical Linear Algebra
  - Math 170B Numerical Analysis
  - Math 170C Numerical Ordinary Differential Equations
  - Math 172 Numerical Partial Differential Equations
  - Math 173 Mathematical Software-Scientific Programming
  - Math 174 Numerical Methods in Science and Engineering (Duplication of credit with Math 170ABC)
- \* Any eight units from List B:
  - List B
  - Math 155A-B Computer Graphics
  - Math 160A-B Elementary Math. Logic
  - Math 166B Theory of Computability
  - Math 168A-B Topics in Applied Math-CS
  - Math 107A-B Computer Algebra
  - Math 184B Mathematical Foundations of CS
  - Math 187 Introduction to Cryptography
  - CSE 120-121 Computer Operating Systems
  - CSE 130 Programming Languages
  - CSE 131A-B Compiler Construction
  - CSE 140-140L Comp. & Design Techniques for Digital Systems
  - CSE 141-141L Intro to Computer Architecture
- \* Any additional 8 units from List A or B above or from:
  - Math 102 Applied Linear Algebra, Math 110 Intro to Partial Diff. Equations, Math 130A-B Ord. Diff. Equations,
  - Math 131 Var. Methods in Optimization, Math 132A-B Elements of PDE & Integral Equations, Math 140A-B Foundations of Analysis,
  - Math 142A-B Advanced Calculus, Math 171A-B Mathematical Programming, Math 180B-C Intro to Prob., Math 181A-B-C Intro to Stats

**Course Selections:**

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|--|--|
| 1) Math <u>109</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>         | 8) Math/CSE <u>188/101</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/> |
| 2) Math _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>              | 9) Math _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>              |
| 3) Math _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>              | 10) Math _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>             |
| 4) Math/CSE <u>166/105</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/> | 11) _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>                  |
| 5) Math/CSE <u>176/100</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/> | 12) _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>                  |
| 6) Math <u>180A/183</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>    | 13) _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>                  |
| 7) Math <u>184</u> (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>         | 14) _____ (4 units) <input style="width: 40px; height: 20px;" type="checkbox"/>                  |

### Mathematics Department Evaluation:

Comments: \_\_\_\_\_

Advisor: \_\_\_\_\_ Date: \_\_\_\_\_

Date Revised: 9/10/03