



# California State University Channel Islands

## Bachelor of Science

# MATHEMATICS

### Advisement Form 2007-2008

Name \_\_\_\_\_ ID \_\_\_\_\_

120 minimum units are required for graduation.

|   | Units | Instit. | Course | Units | Grade | Term | Comments/Prerequisites and GE  |
|---|-------|---------|--------|-------|-------|------|--|
| <b>Lower Division Requirements (34-35 units)</b>  |       |         |        |       |       |      |  |
| MATH 150 Calculus I   | 4     |         |        |       |       |      | Prereq: Passing score on Calculus Placement Exam or MATH 105; GE: B3                     |
| MATH 151 Calculus II  | 4     |         |        |       |       |      | Prereq: MATH 150<br>Must receive grade of C or better                                    |
| MATH 230 Logic and Mathematical Reasoning   | 3     |         |        |       |       |      | GE: A3 & B3  |
| MATH 240 Linear Algebra   | 3     |         |        |       |       |      | Prereq: MATH 151   |
| MATH 250 Calculus III   | 3     |         |        |       |       |      | Prereq: MATH 151 with a C or better  |
| COMP 105 Computer Programming Introduction<br><b>OR</b><br>COMP 150 Object Oriented Programming | 4     |         |        |       |       |      | <u>COMP 105</u> ; GE: B4<br><br><u>COMP 150</u> : Prereq: Programming experience; GE: B4 |
| Additional COMP course  | 2-4   |         |        |       |       |      | COMP 102 or higher   |
| <i>Select <b>one</b> PHYS/Science combination listed below (10-12 units):</i>                   |       |         |        |       |       |      |  |
| PHYS 200 General Physics I (Required)   | 4     |         |        |       |       |      | Prereq: MATH 150, GE: B1   |
| PHYS 201 General Physics II (Recommended)   | 4     |         |        |       |       |      | Prereq: PHYS 200, GE: B1   |
| One additional science course   | 3-4   |         |        |       |       |      | GE: B2   |
| <b>OR</b>   |       |         |        |       |       |      |  |
| PHYS 200 General Physics I (Required)   | 4     |         |        |       |       |      | Prereq: MATH 150, GE: B1   |
| <u>Two</u> semester science sequence  | 3-4   |         |        |       |       |      | GE: B2   |
|   | 3-4   |         |        |       |       |      |  |
| <b>General Mathematics Requirements (20 units)</b>  |       |         |        |       |       |      |  |
| MATH 300 Discrete Mathematics   | 3     |         |        |       |       |      | Prereq: MATH 151 and 230   |
| MATH 331 History of Mathematics   | 3     |         |        |       |       |      | GE: B3, D, & INTD  |
| MATH 350 Differential Equations and Dynamical Systems   | 3     |         |        |       |       |      | Prereq: MATH 250<br>(may be taken concurrently)  |
| MATH 351 Real Analysis  | 3     |         |        |       |       |      | Prereq: MATH 250   |
| MATH 352 Probability and Statistics   | 3     |         |        |       |       |      | Prereq: MATH 151   |
| MATH 451 Complex Analysis   | 3     |         |        |       |       |      | Prereq: MATH 250   |
| MATH 499 Senior Colloquium  | 1     |         |        |       |       |      | Prereq: Senior standing. Repeatable.   |
| MATH 499 Senior Colloquium  | 1     |         |        |       |       |      | Prereq: Senior standing. Repeatable.   |

|  | Units | Instit. | Course | Units | Grade | Term | Comments/Prerequisites and GE   |
|--|-------|---------|--------|-------|-------|------|---|
| <b>Emphasis Requirements (6-10 units).</b> Select <u>one</u> emphasis from the following 10 emphasis areas listed):<br><i>Note: Courses used in the Emphases cannot be counted to also fulfill an elective requirement</i> |       |         |        |       |       |      |   |
| <b>(1) Biomathematics (10 units)</b> Students selecting this Emphasis should take BIOL 201 in the science sequence   |       |         |        |       |       |      |   |
| MATH/PSY 202 Biostatistics<br><i>Must receive a grade of C or better</i>   | 3     |         |        |       |       |      | Prereq: A passing score on the Entry Level Mathematics exam (ELM) or MATH 105 or equivalent; GE: B3 |
| MATH 430 Research Design and Data Analysis   | 3     |         |        |       |       |      | Prereq: MATH 202 with a C or better or MATH 352; GE: B2, B3 & INTD                                  |
| MATH/COMP 452 Computational Bioinformatics   | 4     |         |        |       |       |      | Prereq: Programming Experience & Statistics or Consent of Instructor                                |
| <b>2) Computer Science (9 units)</b> Students selecting this emphasis should take COMP 150 and COMP 151 for the computer science requirements.   |       |         |        |       |       |      |   |
| COMP 350 Introduction to Software Engineering  | 3     |         |        |       |       |      | Prereq: COMP 232 and 262  |
| MATH 448 Scientific Computing  | 3     |         |        |       |       |      | Prereq: MATH 151 & 350 or COMP 151 GE: B3, B4, & INTD   |
| MATH 354 Analysis of Algorithms  | 3     |         |        |       |       |      | Prereq: MATH 300, some computer programming experience  |
| <b>3) Physics (6 units)</b> Students selecting this emphasis should take PHYS 200 and PHYS 201 as the science sequence   |       |         |        |       |       |      |   |
| MATH 450 Partial Differential Equations and Mathematical Physics   | 3     |         |        |       |       |      | Prereq: MATH 350 or consent of instructor   |
| PHYS (upper division)  | 3     |         |        |       |       |      | Need program advisor approval   |
| <b>4) Applied Physics (6 units)</b> Students selecting this emphasis should take PHYS 200 and 201 as the science sequence  |       |         |        |       |       |      |   |
| MATH/COMP/PHYS 345 Digital Image Processing  | 3     |         |        |       |       |      | Prereq: Consent of instructor; GE: B1, B4 & INTD  |
| MATH/COMP/PHYS 445 Image Analysis and Pattern Recognition  | 3     |         |        |       |       |      | Prereq: PHYS/COMP/MATH 345 or consent of instructor; GE: B1, B4 & INTD                              |
| <b>5) Actuarial Sciences/Economics (9 units)</b> *See faculty advisor for course substitutions in this area.   |       |         |        |       |       |      |   |
| ECON 300 Fundamentals of Economics   | 3     |         |        |       |       |      | GE: D; Not open to students with credit in ECON 110 or 111  |
| ECON 486 Introduction to Econometrics  | 3     |         |        |       |       |      | Prereq: ECON 310 or 329, 311 and MATH 329   |
| MATH 429 Operations Research   | 3     |         |        |       |       |      | Prereq: MATH 329 or 352 or equivalent   |
| <b>6) Business Management (9 units)</b>  |       |         |        |       |       |      |   |
| MATH 329 Statistics for Business and Economics   | 3     |         |        |       |       |      | GE: B3  |
| MATH 429 Operations Research   | 3     |         |        |       |       |      | Prereq: MATH 329 or 352 or equivalent   |
| Economics or upper division Management course  | 3     |         |        |       |       |      |   |
| <b>7) Cognitive Science (9 units)</b>  |       |         |        |       |       |      |   |
| MATH 430 Research Design and Data Analysis   | 3     |         |        |       |       |      | Prereq: MATH 202 with a grade of C or better or MATH 352; GE: B2, B3 & INTD                         |
| PSY 210 Learning, Cognition, and Development   | 3     |         |        |       |       |      | GE: E   |
| PSY Upper division cognitive psychology course   | 3     |         |        |       |       |      | Needs program approval  |

| Emphasis Requirements, cont.  | Units | Instit. | Course | Units | Grade | Term | Comments/Prerequisites and GE   |
|---|-------|---------|--------|-------|-------|------|---|
| <b>8) Education (9 units)</b> <i>Students planning on teaching mathematics have to choose Education Emphasis to meet the Single Subject Matter Preparation requirements.</i>  |       |         |        |       |       |      |   |
| EDUC 512 Equity, Diversity and Foundations of Schooling   | 3     |         |        |       |       |      | GE: C3b; <i>EDUC 512 is a required class for the teaching credential program at CSUCI</i> |
| MATH 318 Mathematics for Secondary School Teachers  | 3     |         |        |       |       |      | Prereq: MATH 150  |
| MATH 393 Abstract Algebra I   | 3     |         |        |       |       |      | Prereq: MATH 300  |
| <b>9) Applied Mathematics (9 units)</b>   |       |         |        |       |       |      |   |
| MATH 429 Operations Research  | 3     |         |        |       |       |      | Prereq: MATH 329 or 352 or equivalent   |
| MATH 448 Scientific Computing   | 3     |         |        |       |       |      | Prereq: MATH 151 & 350 or COMP 151 GE: B3, B4, & INTD                                     |
| MATH 450 Partial Differential Equations and Mathematical Physics  | 3     |         |        |       |       |      | Prereq: MATH 350 or consent of instructor   |
| <b>10) Digital Design (9 units)</b>   |       |         |        |       |       |      |   |
| MATH 393 Abstract Algebra   | 3     |         |        |       |       |      | Prereq: MATH 300  |
| ART 108 Visual Technologies   | 3     |         |        |       |       |      |   |
| ART 312 Digital Media Art: Time Based Imaging and Compositing (3) <i>or</i> ART 314 Digital Media Art: Digital Photography (3)  | 3     |         |        |       |       |      | <u>ART 312</u> : Prereq: ART 108, 205<br><u>ART 314</u> : Prereq: 2ART 108                |
| <i>NOTE: Choice of another emphasis or individualized emphasis is possible upon approval of the mathematics advisor</i>   |       |         |        |       |       |      |   |
|   |       |         |        |       |       |      |   |
|   |       |         |        |       |       |      |   |
|   |       |         |        |       |       |      |   |
| <b>Elective Requirements (9-13 units)</b> <i>Courses selected below must be outside of your emphasis area. Students planning on teaching math have to choose MATH 492 (3 units) for field experience requirement. Other courses recommended for teaching careers are marked with *.</i> |       |         |        |       |       |      |   |
| MATH 318 Mathematics for Secondary School Teachers *  | 3     |         |        |       |       |      | Prereq: MATH 150  |
| MATH 330 Mathematics and Fine Arts *  | 3     |         |        |       |       |      | Prereq: A passing score on the ELM exam or MATH 95, GE: B3 & INTD                         |
| MATH 354 Analysis of Algorithms   | 3     |         |        |       |       |      | Prereq: MATH 300, some computer programming experience                                    |
| MATH 393 Abstract Algebra *   | 3     |         |        |       |       |      | Prereq: MATH 300  |
| MATH 429 Operations Research  | 3     |         |        |       |       |      | Prereq: MATH 329 or 352 or equivalent   |
| MATH 430 Research Design and Data Analysis  | 3     |         |        |       |       |      | Prereq: BIOL/MATH/PSY 202 with a C or better or MATH 352; GE: B2, B3 & INTD               |
| MATH 437 Mathematics for Game Development   | 3     |         |        |       |       |      | Prereq: MATH 137 or 300, GE: B3, INTD   |
| MATH 448 Scientific Computing   | 3     |         |        |       |       |      | Prereq: MATH 151 & 350 or COMP 151 GE: B3, B4, & INTD                                     |
| MATH 450 Partial Differential Equations and Mathematical Physics  | 3     |         |        |       |       |      | Prereq: MATH 350 or consent of instructor   |
| MATH 480 Differential and Riemannian Geometry   | 3     |         |        |       |       |      | Prereq: MATH 351  |
| MATH 482 Number Theory and Cryptography *   | 3     |         |        |       |       |      | Prereq: MATH 300  |
| MATH 484 Algebraic Geometry and Coding Theory   | 3     |         |        |       |       |      | Prereq: MATH 393  |
| MATH/PHYS/COMP 345 Digital Image Processing   | 3     |         |        |       |       |      | Prereq: Consent of instructor; GE: B1, B4 & INTD  |

| Elective Requirements, cont.                              | Units | Instit. | Course | Units | Grade | Term | Comments/Prerequisites and GE   |
|---|-------|---------|--------|-------|-------|------|---|
| MATH/PHYS/COMP 445 Image Analysis and Pattern Recognition | 3     |         |        |       |       |      | Prereq: PHYS/COMP/MATH 345 or consent of instructor;<br>GE: B1, B4 & INTD |
| MATH/COMP 452 Computational Bioinformatics                | 4     |         |        |       |       |      | Prereq: Programming experience, statistics, or consent of instructor      |
| MATH 490 Topics in Modern Mathematics                     | 3     |         |        |       |       |      | Prereq: Upper division standing   |
| MATH 492 Internship *                                     | 1-3   |         |        |       |       |      | Prereq: Upper division standing and program approval of written proposal  |
| MATH 494 Independent Research                             | 1-3   |         |        |       |       |      | Prereq: Senior standing and program approval of written proposal          |
| MATH 497 Directed Studies                                 | 3     |         |        |       |       |      | Prereq: Program approval of written proposal                              |
| MATH 499 Senior Colloquium                                | 1     |         |        |       |       |      | Prereq: Senior standing. Repeatable.                                      |

### Additional University Graduation Requirements

**9 Units Upper Division Interdisciplinary GE at CSUCI (courses numbered 330-349 or 430-449)**

Course 1 (in major)   MATH 331   Course 2 (in major) \_\_\_\_\_ Course 3 (outside of major) \_\_\_\_\_  
 (MATH 330, 345, 430, 437, 445, 448) (Choose from GE A-E; Recommend COMP 447, 449 or PHYS 434)

**American Institutions Requirements:** US History \_\_\_\_\_ State and Local Gov't   POLS 150    
 (Choose from HIST 270, 271, 272, 275 or 350)

Students must receive a grade of C or better in the language and Multicultural Requirements

**Language Requirement:** GE C3a \_\_\_\_\_  
 (one semester of college level language)

**Multicultural Requirement:** GE C3b \_\_\_\_\_

Minimum total units to graduate: 120 of which 40 must be upper division. Please see catalog for a complete list of graduation requirements.

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

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

### PREREQUISITES FOR THE MATHEMATICS SINGLE SUBJECT TEACHING CREDENTIAL AT CSUCI ONLY:

These courses may be taken as part of undergraduate work or after graduation, but must be completed prior to Single Subject coursework at CSUCI.

\*Field Experience (need 45 hours in 7<sup>th</sup>-12<sup>th</sup> grade classroom): EDUC 521 (30 hours) \_\_\_\_\_ Other \_\_\_\_\_

\*ENGL 475 Language in a Social Context (3): \_\_\_\_\_

\*SPED 345 Individuals with Disabilities in Society (3): \_\_\_\_\_

\*EDUC 512 Equity, Diversity and Foundations of Schooling (3) (GE: C3b): Included in the Education emphasis of the Mathematics major \_\_\_\_\_

\*EDUC 520 Observing and Guiding Behavior in Multilingual/Multicultural and Inclusive Classrooms (3) (co-requisite EDUC 521): \_\_\_\_\_

\*EDUC 521 Field Experience (1) (co-requisite EDUC 520): \_\_\_\_\_

For additional questions about the credential program, please contact the Credential Office at 805-437-8953 or [credential.assistant@csuci.edu](mailto:credential.assistant@csuci.edu).  
 The Credential Office is located in the Bell Tower, First Floor, Room 1595.