

2011-13 Cal Poly Catalog
Mathematics Department

BS MATHEMATICS

- 60 units upper division GWR
- 2.0 GPA USCP

* = Required in Major; also satisfies GE
 Course sequencing: See flowcharts at
www.csmadvising.calpoly.edu

Note: No major, support or concentration courses
 may be taken as credit/no credit.

MAJOR COURSES

| | |
|--|------------------------------------|
| MATH 141 Calculus I (B1)* | 4 |
| MATH 142 Calculus II (B1)*..... | 4 |
| MATH 143 Calculus III | 4 |
| MATH 202 Orientation to the Mathematics Major | 1 |
| MATH 206 Linear Algebra I..... | 4 |
| MATH 241 Calculus IV | 4 |
| MATH 242 Differential Equations I..... | 4 |
| MATH 248 Methods of Proof in Mathematics | 4 |
| MATH 306 Linear Algebra II..... | 4 |
| MATH 412 Introduction to Analysis I..... | 4 |
| MATH 459 Senior Seminar <i>or</i> | |
| MATH 460 Applied Math Senior Seminar | 4 |
| MATH 461 Senior Project I..... | 2 |
| MATH 462 Senior Project II..... | 2 |
| MATH 481 Abstract Algebra I..... | 4 |
| PHYS 141 General Physics IA | 4 |
| PHYS 132 General Physics II <i>or</i> | |
| PHYS 133 General Physics III (B3 & B4)*..... | 4 |
| General curriculum or concentration | 48/56/52/52 ¹ |
| | 105/113/109/109¹ |

GENERAL EDUCATION (GE)

72 units required, 12 of which are specified in Major.
 →See page 39 for complete GE course listing.
 →Minimum of 12 units required at the 300 level.

Area A Communication (12 units)

| | |
|--|---|
| A1 Expository Writing | 4 |
| A2 Oral Communication | 4 |
| A3 Reasoning, Argumentation, and Writing | 4 |

Area B Science and Mathematics (4 units)

| | |
|---|---|
| B1 Mathematics/Stat * 8 units in Major/ Support | 0 |
| B2 Life Science | 4 |
| B3 Physical Science * 4 units in Support | 0 |
| B4 One lab taken with either a B2 or B3 course *in Major | |

Area C Arts and Humanities (20 units)

| | |
|--|---|
| C1 Literature | 4 |
| C2 Philosophy | 4 |
| C3 Fine/Performing Arts | 4 |
| C4 Upper-division elective | 4 |
| Area C elective (Choose one course from C1-C4) | 4 |

Area D/E Society and the Individual (20 units)

| | |
|--|---|
| D1 The American Experience (40404) | 4 |
| D2 Political Economy | 4 |
| D3 Comparative Social Institutions | 4 |
| D4 Self Development (CSU Area E) | 4 |

| | |
|--|-----------|
| D5 Upper-division elective | 4 |
| Area F Technology Elective (upper division) (4 units) | 4 |
| | 60 |

| | |
|-----------------------------|-------------------------------|
| FREE ELECTIVES | 15/7/11/11¹ |
| | 180 |

General Curriculum in Mathematics or Concentrations (select one)

General Curriculum in Mathematics

This is the default curriculum required for students who do not declare a concentration.

| | |
|--|----|
| CSC/CPE 101 Fund. of Computer Science I <i>or</i> | |
| CSC/CPE 235 Fundamentals of Computer | |
| Science for Scientists and Engineers I | 4 |
| STAT 301 <i>or</i> STAT 305 <i>or</i> STAT 325 <i>or</i> STAT 425 | 4 |
| MATH 336 Combinatorial Mathematics | 4 |
| Tracks..... | 24 |

Choose three tracks from the following list, with at least one track chosen from the first two tracks listed. A track consists of two paired courses representing depth of study with a particular focus.

- MATH 413 *and* MATH 414
- MATH 406 *and* MATH 482
- MATH 304 *and* MATH 404
- MATH 335 *and* MATH 435
- MATH 344, *and* MATH 416 *or* MATH 418
- MATH 350, *and* MATH 341 *or* MATH 344
- MATH 408 *and* MATH 409
- MATH 437 *and* MATH 453
- MATH 440 *and* MATH 441
- MATH 442 *and* MATH 443
- MATH 451 *and* MATH 452

| | |
|---|-----------|
| Approved Electives | 12 |
| Select 3 courses from the following: | |
| MATH 304, 335, 341, 344, 350, 404, 406, 408, | |
| 409, 413, 414, 416, 418, 419, 435, 436, 437, 440, | |
| 441, 442, 443, 451, 452, 453, 470, 482; | |
| CSC/CPE 102, 103, 236, 349; | |
| PHYS 132, 133, 211, 301, 302, 322, 323, 405, 408; | |
| STAT 301, 302, 305 , 325, 425, 426, 427 | |
| (6/16/15) | 48 |

Applied Mathematics Concentration

| | |
|--|---|
| CSC/CPE 101 Fund. of Computer Science I <i>or</i> | |
| CSC/CPE 235 Fundamentals of Computer | |
| Science for Scientists and Engineers I | 4 |
| MATH 304 Vector Analysis | 4 |
| MATH 344 Linear Analysis II..... | 4 |
| MATH 350 <i>or</i> CSC/CPE 102 <i>or</i> CSC/CPE 236 | 4 |
| MATH 413 Introduction to Analysis II..... | 4 |
| MATH 451 Numerical Analysis I..... | 4 |
| STAT 301 <i>or</i> STAT 305 <i>or</i> STAT 325 <i>or</i> STAT 425 | 4 |

¹ General Curriculum/Applied Concentration/Pure Concentration/
 Mathematics Teaching Concentration.

| | | | |
|--|----|--|----|
| Tracks | 16 | MATH 482 Abstract Algebra II | 4 |
| Choose two tracks from the following list. A track consists of two paired courses representing depth of study with a particular focus. | | Select 1 course from the following:..... | 4 |
| MATH 408 <i>and</i> MATH 409 | | CSC/CPE 102, 236; | |
| MATH 416 <i>and</i> MATH 418 | | MATH 304, 335, 344, 406, 408, 413, 416, 435, | |
| MATH 452 <i>and</i> MATH 453 | | 437, 440, 451, 470; | |
| | | PHYS 132, 133, 302 | |
| | | (6/16/15) | 52 |
| ¹ Approved electives | 12 | | |
| Select 12 units from one of the following categories, with at least one course at the 300 level or above. Other choices are also possible, and should be pre-approved in consultation with academic advisor. | | | |
| 1. ASTR 301, 302, 326 | | | |
| PHYS 132, 133, 211, 301, 302, 303, 317, 322, 323, 405, 408, 412, 417 | | | |
| 2. STAT 302, 305, 323, 324, 325, 330, 331, 416, 417, | | | |
| 418, 419, 421, 423, 425, 426, 427 | | | |
| 3. CSC/CPE 102 or 236, 103, 225, 349, 357, 448 | | | |
| 4. ME 211, 212, 302, 326, 341 <i>Added 4/20/11</i> | | | |
| 5. ECON 311, 313, 408 | | | |
| (6/16/15) | 56 | | |
| Pure Mathematics Concentration | | | |
| MATH 336 Combinatorial Mathematics | 4 | | |
| MATH 408 Complex Analysis I..... | 4 | | |
| MATH 413 Introduction to Analysis II | 4 | | |
| MATH 440 Topology I | 4 | | |
| MATH 482 Abstract Algebra II | 4 | | |
| Select 3 courses from the following: | 12 | | |
| MATH 406, 409, 414, 435, 441 | | | |
| Select 2 courses from the following | 8 | | |
| CSC/CPE 101 <i>or</i> CSC/CPE 235 (4) | | | |
| MATH 350 (4) | | | |
| STAT 301 <i>or</i> STAT 305 <i>or</i> STAT 325 <i>or</i> STAT 425 (4) (6/16/15) | | | |
| Select 3 courses from the following | 12 | | |
| MATH 304, 335, 341, 344, 350, 404, 406, 409, 414, 416, 418, 435, 436, 437, 441, 451, 452, 453, 470 | | | |
| | 52 | | |
| Mathematics Teaching Concentration | | | |
| CSC/CPE 101 Fundamentals of Computer Science I <i>or</i> CSC/CPE 235 Fundamentals of Computer Science for Scientists and Engineers I..... | 4 | | |
| SCM 300 Early Field Experience, Science/Math | 4 | | |
| MATH 300 Technology in Mathematics Education | 4 | | |
| STAT 301 Statistics I..... | 4 | | |
| STAT 302 <i>or</i> STAT 305 <i>or</i> STAT 325 <i>or</i> STAT 425 | 4 | | |
| MATH 336 Combinatorial Mathematics | 4 | | |
| MATH 341 Theory of Numbers | 4 | | |
| MATH 419 Intro to the History of Mathematics | 4 | | |
| MATH 423 Advanced Mathematics for Teaching | 4 | | |
| MATH 442 Euclidean Geometry | 4 | | |
| MATH 443 Modern Geometries | 4 | | |
| | | ¹ Consultation with advisor is recommended prior to selecting approved electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals. | |