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 or 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 or PHYS 133 General Physics III (B3 & B4)*....... 4

General curriculum or concentration .......................... 48/56/52/52

105/113/109/109

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

FREE ELECTIVES .................................................. 15/7/11/11

60

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 or CSC/CPE 235 Fundamentals of Computer Science for Scientists and Engineers I ................. 4

STAT 301 or STAT 305 or STAT 325 or 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

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Applied Mathematics Concentration

CSC/CPE 101 Fund. of Computer Science I or CSC/CPE 235 Fundamentals of Computer Science for Scientists and Engineers I ................. 4

MATH 304 Vector Analysis ....................................... 4

MATH 334 Linear Analysis II ................................... 4

MATH 350 or CSC/CPE 102 or CSC/CPE 236 .... 4

MATH 413 Introduction to Analysis II ................. 4

MATH 451 Numerical Analysis I ......................... 4

STAT 301 or STAT 305 or STAT 325 or STAT 425 4

1 General Curriculum/Applied Concentration/Pure Concentration/ Mathematics Teaching Concentration.
Tracks ................................................................. 16
Choose two tracks from the following list. A track consists of two paired courses representing depth of study with a particular focus.
   MATH 408 and MATH 409
   MATH 416 and MATH 418
   MATH 452 and MATH 453

i 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 Added 4/20/11
5. ECON 311, 313, 408

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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 or CSC/CPE 235 (4)
   MATH 350 (4)
   STAT 301 or STAT 305 or STAT 325 or STAT 425 (4) (6/16/15)
Select 3 courses from the following .................... 12

Mathematics Teaching Concentration
   CSC/CPE 101 Fundamentals of Computer Science I
   or 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 or STAT 305 or STAT 325 or 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.