

## 2009-11 Cal Poly Catalog

### Chemistry & Biochemistry Department

#### BS BIOCHEMISTRY Flowchart

- 60 units upper division  
 2.0 GPA

- GWR  
 USCP

\* = Required in Major/Support; also satisfies GE

Course sequencing: See flowcharts at

[www.csmadvising.calpoly.edu](http://www.csmadvising.calpoly.edu)

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

#### MAJOR COURSES

|   |                  |
|---|------------------|
| CHEM 127 General Chemistry (B3 & B4)* .....                                     | 4                |
| CHEM 128 General Chemistry .....  | 4                |
| CHEM 129 General Chemistry .....  | 4                |
| CHEM 316 Organic Chemistry I .....  | 5                |
| CHEM 317 Organic Chemistry II .....   | 5                |
| CHEM 318 Organic Chemistry III .....  | 3                |
| CHEM 319 Advanced Organic Chemistry Lab .....                                   | 2                |
| <sup>1</sup> CHEM 331 Quantitative Analysis .....                               | 5                |
| CHEM 351 Physical Chemistry I .....   | 3                |
| CHEM 352 Physical Chemistry II .....  | 3                |
| CHEM 353 Physical Chemistry III .....   | 3                |
| CHEM 354 Physical Chemistry Laboratory.....                                     | 2                |
| CHEM 371 Biochemical Principles .....   | 5                |
| CHEM 372 Metabolism .....   | 4                |
| CHEM 373 Molecular Biology .....  | 3                |
| Select one course from:   |                  |
| <sup>2</sup> CHEM 375 Molecular Biology Laboratory, or                          |                  |
| CHEM 474 Protein Techniques Laboratory .....                                    | 2                |
| Select one course from:   |                  |
| CHEM 375, 439 <sup>3</sup> , 474 <sup>2</sup> ; BIO 361 <sup>3</sup> , 476..... | 2                |
| CHEM 459 Undergraduate Seminar (2) or SCM                                       |                  |
| 491 <sup>4</sup> Student Teacher Seminar (1)(1) .....                           | 2                |
| CHEM 461 Senior Project Report.....   | 1                |
| <sup>5</sup> Select 12 units of advanced approved                               |                  |
| biochemistry electives or Polymers and  |                  |
| Coatings Concentration to complete major.                                       |                  |
| At least two courses must be from List A,                                       | 12-18            |
| including one lecture. ....   | <del>12-23</del> |
| List A  |                  |
| CHEM 252, 341, 349, 357, 375, 377, 400 <sup>6</sup> , 401 <sup>7</sup> ,        |                  |
| 405, 419, 420, 439, 444, 445, 446, 447, 448,                                    |                  |
| 449, 458, 463, 465, 470, 474, 477, 478, 481,                                    |                  |
| 484, 485 <sup>6</sup> , 495 <sup>6</sup> , 528;                                 |                  |
| BIO/PSC 424; SCM 451  |                  |
| List B  |                  |
| BIO 361, 405, 432, 452;   |                  |
| MCRO 402, 423, 424;   |                  |
| ZOO 422   |                  |

**74-85 80**

#### SUPPORT COURSES

|  |       |
|--|-------|
| BIO 161 Intro to Cell & Molecular Biology (B2)*    | 4     |
| MATH 141, 142, 143 Calculus I, II, III (B1)* ..... | 4,4,4 |

|  |              |
|--|--------------|
| PHYS 121, 122, 123 College Physics or                    |              |
| PHYS 141, 132, 133 General Physics .....                 | 4,4,4        |
| MCRO 224 <sup>2</sup> Gen Microbio I or BIO 452 Cell Bio | 4-5          |
|  | <b>32-33</b> |

#### GENERAL EDUCATION (GE)

72 units required, 16 of which are specified in Major/Support.

→See page 50 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 (no add'l units req'd)

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

#### 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         |
|                 | <b>56</b> |

**FREE ELECTIVES** ..... **11-18** ~~6-23~~ **18**

*Corrected 1/24/11*

**180**

#### Concentration

(Students may select the following concentration)

#### Polymers and Coatings Concentration

|  |   |
|--|---|
| CHEM 444 Polymers and Coatings I.....            | 3 |
| CHEM 445 Polymers and Coatings II .....          | 3 |
| CHEM 446 Surface Chemistry of Materials .....    | 3 |
| CHEM 447 Polymers and Coatings Lab I .....       | 2 |
| CHEM 448 Polymers and Coatings Lab II .....      | 2 |
| CHEM 449 Internship in Polymers and Coatings.... | 2 |
| MATE 210 Materials Engineering.....              | 3 |

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<sup>1</sup> Students should take CHEM 331 as soon as possible after completing CHEM 129.

<sup>2</sup> Required for Molecular Biology concentration.

<sup>3</sup> Excess units count as approved advanced Biochemistry electives.

<sup>4</sup> SCM 491 only for students pursuing Single-Subject Teaching Credential.

<sup>5</sup> 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.

<sup>6</sup> No more than 2 units may apply to approved advanced biochemistry electives.

<sup>7</sup> No more than 4 units may apply to approved advanced biochemistry electives.