**B.S. BIOCHEMISTRY**

NAME___________________________________________

STUDENT ID_____________________________________

CONCENTRATION________________________________

MINOR___________________________________________

Major GPA at least 2.00 [ ] YES [ ] NO

US Cultural Pluralism Met++ [ ] YES [ ] NO

60 Units Upper Division Met [ ] YES [ ] NO

GWR Met [ ] YES [ ] NO

Upper Div GE Met [ ] YES [ ] NO

Free Electives Met [ ] YES [ ] NO

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**DEGREE DATE Earned**

**Hours**

**Quality Hours**

**Quality Points**

**GPA**

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**Transfer**

**Cal Poly**

**Transcript Totals**

<= Units that are NOT Degree Applicable

<= Degree Applicable Units

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**GENERAL EDUCATION (GE)**

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

→Minimum of 12 units required at the 300 level.

**Area A Communication**

12 units

A1 ENGL 133/134 ........................................ 4

A2 COMS 101/102 ....................................... 4

A3 Reason, Arg., & Writing .......................... 4

**Area B Science and Mathematics (no add’l units req’d)** 0

**Area C Arts and Humanities**

20 units

C1 Literature ............................................. 4

C2 PHIL 230/231 ........................................ 4

C3 Fine/Performing Arts ............................... 4

C4 Upper-division elective ............................ 4

C1-C4 elective .......................................... 4

**Area D/E Society and the Individual**

20 units

D1 Amer. Exp. (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 (upper div)**

4 units

**Additional GE Units (if needed)**

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**ELECTIVES**

11-18 units

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**SUPPORT COURSES (32-33)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Grade</th>
<th>GradePts</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 161 Intro Cell &amp; Mole. (B2&amp;B4)*</td>
<td>4</td>
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<tr>
<td>MATH 141 Calculus I (B1)*</td>
<td>4</td>
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<tr>
<td>MATH 142 Calculus II (B1)*</td>
<td>4</td>
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<tr>
<td>MATH 143 Calculus III (B1)*</td>
<td>4</td>
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<tr>
<td>PHYS 121 (B3&amp;B4) or PHYS 141 (B3)*</td>
<td>4</td>
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<tr>
<td>PHYS 122/132 (B3&amp;B4)</td>
<td>4</td>
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<tr>
<td>PHYS 123/133 (B3&amp;B4)</td>
<td>4</td>
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<tr>
<td>MCRO 224 (B2&amp;B4) or BIO 452</td>
<td>4-5</td>
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**MAJOR COURSES (74-80)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Grade</th>
<th>GradePts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 127 Gen Chem (B3&amp;B4)*</td>
<td>4</td>
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<tr>
<td>CHEM 128 Gen Chem</td>
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<tr>
<td>CHEM 129 Gen Chem</td>
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<tr>
<td>'CHEM 316 Organic Chem I</td>
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<td>'CHEM 317 Organic Chem II</td>
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<tr>
<td>'CHEM 318 Organic Chem III</td>
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<tr>
<td>CHEM 319 Adv Organic Chem Lab</td>
<td>2</td>
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<tr>
<td>'CHEM 331 Quantitative Analysis</td>
<td>5</td>
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<tr>
<td>CHEM 351 Physical Chem I</td>
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<tr>
<td>CHEM 352 Physical Chem II</td>
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<tr>
<td>CHEM 353 Physical Chem III</td>
<td>3</td>
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<tr>
<td>CHEM 354 Physical Chem Lab</td>
<td>2</td>
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<tr>
<td>CHEM 371 Biochemical Principles</td>
<td>5</td>
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<tr>
<td>CHEM 372 Metabolism</td>
<td>4</td>
<td></td>
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<tr>
<td>CHEM 373 Molecular Biology</td>
<td>3</td>
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<tr>
<td>'Advanced biochemistry laboratory: CHEM 375 or CHEM 474</td>
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<tr>
<td>'Second advanced laboratory: CHEM 375, 439, 474* BIO 361, 476</td>
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<tr>
<td>CHEM 459 (2) or SCM 491 (1)(1)</td>
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<tr>
<td>CHEM 461 Senior Project Report</td>
<td>1</td>
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* = Courses satisfy GE requirement

Note: No Major, Support or Conc. courses may be taken credit/no credit.

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1 Or transfer equivalent to CHEM 216, 217, 218.

2 Students should take CHEM 331 as soon as possible after completing CHEM 129.

3 Excess units can be applied to Advanced Biochemistry Electives.

4 Required for Molecular Biology concentration.

5 SCM 491 only for students pursuing Single-Subject Teaching Credential.

6 See department for current advanced electives list for Biochemistry major.
Advanced Biochemistry Electives (12)

Select 12 units if not declaring a concentration. At least two courses must be from List A, including one lecture.

List A (Select at least 1 lecture/2 courses)

- CHEM 252 Laboratory Glassblowing (1)
- CHEM 341 Environmental Chemistry: Water Pollution (3)
- CHEM 342 Environmental Chemistry: Air Pollution (3)
- CHEM 344 Environmental Chemistry Laboratory (1)
- CHEM 349 Chemical Warfare (4)
- CHEM 350 Chemical Safety (1)
- CHEM 357 Physical Chemistry III Laboratory (1)
- CHEM 375 Molecular Biology Laboratory (2)
- CHEM 377 Chemistry of Drugs and Poisons (3)
- CHEM 385 Geochemistry (3)
- CHEM 400 Special Problems (1-3)
- CHEM 401 Adv Undergraduate Research (1-3) CR/NC
- CHEM 405 Advanced Physical Chemistry (3)
- CHEM 419 Bioorganic Chemistry (3)
- CHEM 420 Advanced Organic Chemistry-Synthesis (3)
- CHEM 439 Instrumental Analysis (5)
- 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 Laboratory I (2)
- CHEM 448 Polymers and Coatings Laboratory II (2)
- CHEM 449 Internship in Polymers and Coatings (2)
- CHEM 455 FT-NMR Laboratory (1)
- CHEM 458 Instrumental Org Qual Anal (3)
- CHEM 463 Senior Project – Honors Research (1)
- CHEM 465 College Teaching Practicum (1-2)
- CHEM 470 Selected Advanced Topics (1-3)
- CHEM 472 Plant Biochemistry (3)
- CHEM 474 Protein Technques Laboratory (2)
- CHEM 477 Biochemical Pharmacology (3)
- CHEM 478 Pharmaceutical Development (3)
- CHEM 481 Inorganic Chemistry (3)
- CHEM 484 Inorganic Chemistry Laboratory (2)
- CHEM 485, 495 Cooperative Educ. Exp. (6, 12)
- CHEM 528 Nutritional Biochemistry (3)
- BIO/PSC 424 Org & Teaching of Phys Sci (4)
- SCM 451 Ethics in the Sciences (3)

List B

- BIO 361 Principles of Physiology (4)
- BIO 405 Developmental Biology (5)
- BIO 432 Vertebrate/Human Anatomy & Physiology (5)
- BIO 452 Cell Biology (4)
- MCRO 402 General Virology (4)
- MCRO 423 Medical Microbiology (5)
- MCRO 424 Microbial Physiology (5)
- ZOO 422 Functional Histology (4)

1 No more than 2 units may apply to chemistry electives
2 No more than 4 units may apply to chemistry electives

Concentration:

**Polymers and Coatings Concentration**

- MATE 210 Materials Engineering .................. 3
- 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

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