The major in **Chemical Engineering** is offered by the College of Chemistry. It is designed to equip the student for professional work in development, design, and operation of chemical products and processes. It prepares the student for employment in such industries as chemical, petroleum, electrochemical, biochemical, semiconductor, nuclear, aerospace, plastics, food processing, environmental control, or related industries.

Transfer applicants are expected to complete, at a minimum, coursework equivalent to Berkeley's:

- **CHEMISTRY 1A + 1AL + 1B**
- **MATH 1A + 1B + 53 + 54**
- **PHYSICS 7A + 7B**
- **ENGLISH R1A**

**Coursework must be completed by the end of the spring term preceding fall enrollment at Berkeley.**

IGETC is not required. Students who choose to complete the entire IGETC pattern by the end of the spring term preceding fall enrollment at Berkeley may use IGETC to fulfill the Reading and Composition Requirement.

Lower division courses required for graduation (but not for admission) are also listed in this Guidelines. Completion of those courses is strongly recommended in order to strengthen one's application. All major courses must be taken for a letter grade. High grades in major courses (B and A grades exclusively) are essential for applicants to be both competitive in the admissions process and to be adequately prepared to continue with junior year coursework at Berkeley.

The applicant's personal statement is important in the admissions process. The personal statement is reviewed for evidence of the student's interest in the chosen field and a thoughtful match between the intended major and academic and career objectives.

**For more information on College of Chemistry policies and degree programs:**

http://chemistry.berkeley.edu/ugrad/degrees/cheme

**For more information on admission to UC Berkeley:**

http://admissions.berkeley.edu

**For more information on majors at UC Berkeley:**

Berkeley Academic Guide: http://guide.berkeley.edu

Additional questions about transferring to the College of Chemistry may be...
To: UC Berkeley, From: Berkeley City College, 18-19

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Chemical Engineering, Lower Division B.S. (continued)
addressed to:
Sanjeev Chahal, Academic Adviser
sanjeev@berkeley.edu
(510) 642-7919

================================================================================
GENERAL CHEMISTRY WITH LABORATORY

CHEM 1A & General Chemistry (3) | CHEM 1A General Chemistry (5)
CHEM 1AL General Chemistry (1) |
Laboratory |

CHEM 1B General Chemistry (4) | CHEM 1B General Chemistry (5)

================================================================================
ORGANIC CHEMISTRY WITH LABORATORY

CHEM 12A (organic chemistry) is required for the Chemical Engineering B.S. degree. CHEM 12B is not required for the Chemical Engineering major, but it is acceptable in satisfaction of the science elective for the open elective program.

Transfer students are encouraged to take the organic chemistry sequence at their institution.

Completion of CHEM 3A + 3AL + 3B + 3BL combined with a score in the 75th percentile or higher on the American Chemical Society (ACS) Organic Chemistry Exam will constitute satisfactory completion of Berkeley's CHEM 12A + 12B. Students are encouraged to take the exam through their community college, if possible. NOTE: The College of Chemistry does not accept results from the 1994 and 1998 versions of the ACS Organic Chemistry Exam.

CHEM 3A & Chemical Structure and Reactivity (3) | CHEM 12A & Organic Chemistry (5)
CHEM 3AL Organic Chemistry (2) |
Laboratory |
CHEM 3B & Chemical Structure and Reactivity (3) |
CHEM 3BL Organic Chemistry (2) |
Laboratory |

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BIOLOGY

Biology 1A (lecture only) is required for the Chemical Engineering B.S. degree.

You may also satisfy this requirement with a score/grade of:
4 or higher on the AP Biology exam satisfies BIOLOGY 1A & 1AL.

BIOL 1A & General Biology Lecture (Cells, Genetics, Animal Form & Function) (3) | BIOL 1A General Biology (5)

BIOL 1AL General Biology Laboratory (2) |

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ENGINEERING

MAT SCI 45 & Properties of Materials (3) | NO COURSE ARTICULATED
MAT SCI 45L Properties of (1) |
To: UC Berkeley, From: Berkeley City College, 18-19

Chemical Engineering, Lower Division B.S. (continued)

Materials Laboratory

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**COMPUTER PROGRAMMING**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGIN 7</td>
<td>Introduction to Computer Programming for Scientists (MATLAB)</td>
<td>4</td>
</tr>
</tbody>
</table>

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**MATHEMATICS**

You may also satisfy this requirement with a score/grade of:
- 3 or higher on the AP Calculus AB exam satisfies MATH 1A;
- 3 or 4 on the AP Calculus BC exam satisfies MATH 1A;
- 5 on the AP Calculus BC exam satisfies MATH 1A + 1B.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 1A</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1B</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 53</td>
<td>Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 54</td>
<td>Linear Algebra and Differential Equations</td>
<td>4</td>
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<tr>
<td>MATH 3A</td>
<td>Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 3B</td>
<td>Calculus II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 3C</td>
<td>Calculus III</td>
<td>5</td>
</tr>
<tr>
<td>MATH 3E</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3F</td>
<td>Differential Equations</td>
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</table>

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**PHYSICS**

PHYSICS 7C is not required for the Chemical Engineering major, but it is acceptable in satisfaction of the science elective for the open elective program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>PHYSICS 7A</td>
<td>Physics for Scientists and Engineers</td>
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<tr>
<td>PHYSICS 7B</td>
<td>Physics for Scientists and Engineers</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 7C</td>
<td>Physics for Scientists and Engineers</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 4A</td>
<td>General Physics with Calculus</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS 4B</td>
<td>General Physics with Calculus</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS 4C</td>
<td>General Physics with Calculus</td>
<td>5</td>
</tr>
</tbody>
</table>

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**READING AND COMPOSITION REQUIREMENT**

Coursework equivalent to Berkeley's:
- English R1A; or
- Entire IGETC pattern completed by the end of the spring term preceding fall enrollment at Berkeley.

**NOTE:** You may also satisfy this requirement with a score/grade of:
- 4 or 5 on the AP exam in either English Language and Composition or English Literature and Composition.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH R1A</td>
<td>Reading and Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENGLISH 1A</td>
<td>Composition and Reading</td>
<td>4</td>
</tr>
</tbody>
</table>

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**END OF MAJOR**