This roadmap is a recommended semester-by-semester plan of study for this major. However, courses and milestones designated as critical (in boldface and shaded areas) must be completed in the semester listed to ensure a timely graduation.

<table>
<thead>
<tr>
<th>Course Subject and Title</th>
<th>Credit Hours</th>
<th>Upper Div.</th>
<th>Min. Grade</th>
<th>Major GPA</th>
<th>Important Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester One: [14 Credit Hours]</strong></td>
<td></td>
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</tr>
<tr>
<td>CHEM 10060 General Chemistry I or CHEM 10960 Honors General Chemistry</td>
<td>4-5</td>
<td>■</td>
<td></td>
<td></td>
<td>Fulfills Kent Core Basic Sciences</td>
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<tr>
<td>CHEM 10062 General Chemistry I Laboratory</td>
<td>0-1</td>
<td>■</td>
<td></td>
<td></td>
<td>Take only if CHEM 10060 is selected</td>
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<tr>
<td>MATH 12002 Analytic Geometry and Calculus I</td>
<td>5</td>
<td>■</td>
<td></td>
<td></td>
<td>Fulfills Kent Core Mathematics and Critical Reasoning</td>
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<tr>
<td>US 10097 Destination Kent State: FYE</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Not required of transfer students with 25 credits</td>
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<td>Kent Core Requirement</td>
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<td>See Kent Core Summary on page 2</td>
</tr>
<tr>
<td><strong>Semester Two: [16 Credit Hours]</strong></td>
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<tr>
<td>CHEM 10061 General Chemistry II or CHEM 10961 Honors General Chemistry</td>
<td>4-5</td>
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<td>If CHEM 10060 was taken; select CHEM 10061; If CHEM 10960 was taken, select CHEM 10961</td>
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<tr>
<td>CHEM 10063 General Chemistry II Laboratory</td>
<td>0-1</td>
<td>■</td>
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<td>Take only if CHEM 10061 is selected</td>
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<tr>
<td>MATH 12003 Analytic Geometry and Calculus II</td>
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<td>See Kent Core Summary on page 2</td>
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<tr>
<td><strong>Semester Three: [16 Credit Hours]</strong></td>
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<tr>
<td>CHEM 30475 Organic Chemistry Laboratory I</td>
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<tr>
<td>CHEM 30481 Organic Chemistry I</td>
<td>3</td>
<td>■</td>
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<td>Offered in fall only</td>
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<tr>
<td>MATH 22005 Analytic Geometry and Calculus III</td>
<td>4</td>
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<tr>
<td>PHY 23101 General University Physics I</td>
<td>5</td>
<td>■</td>
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<td></td>
<td>Fulfills Kent Core Additional</td>
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<td>Kent Core Requirement</td>
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<td>See Kent Core Summary on page 2</td>
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<tr>
<td><strong>Semester Four: [16 Credit Hours]</strong></td>
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<tr>
<td>CHEM 30050 Introduction to Materials Chemistry</td>
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<tr>
<td>CHEM 30301 Inorganic Chemistry I</td>
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<td>Offered in spring only</td>
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<tr>
<td>CHEM 30476 Organic Chemistry Laboratory II</td>
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<td>CHEM 30482 Organic Chemistry II</td>
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<td>Offered in spring only</td>
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<tr>
<td>PHY 23102 General University Physics II</td>
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<td>Fulfills Kent Core Basic Sciences</td>
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<td>See Kent Core Summary on page 2</td>
</tr>
<tr>
<td><strong>Semester Five: [15-16 Credit Hours]</strong></td>
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<tr>
<td>CHEM 30105 Analytical Chemistry I</td>
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<td>Offered in fall only</td>
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<td>CHEM 40320 Inorganic Chemistry II</td>
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<tr>
<td>CHEM 40451 Organic Materials Chemistry</td>
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<td>■</td>
<td></td>
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<td>Offered every other year: 2013, 2015, 2017</td>
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<td>CHEM 40555 Elementary Physical Chemistry</td>
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<td>Offered in fall only</td>
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<tr>
<td>Foreign Language Elementary I</td>
<td>4-5</td>
<td>■</td>
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<td></td>
<td>Fulfills College General Requirement</td>
</tr>
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<td><strong>Semester Six: [16-17 Credit Hours]</strong></td>
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<tr>
<td>CHEM 40303 Inorganic Chemistry III</td>
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<td>■</td>
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<td>Offered in spring only</td>
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<tr>
<td>CHEM 40364 Intermediate Inorganic Chemistry Laboratory</td>
<td>1</td>
<td>■</td>
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<td>Offered in spring only</td>
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<tr>
<td>CHEM 40556 Elementary Physical Chemistry</td>
<td>3</td>
<td>■</td>
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<td>Offered in spring only</td>
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<tr>
<td>Foreign Language Elementary II</td>
<td>4-5</td>
<td>■</td>
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<td></td>
<td>Fulfills College General Requirement</td>
</tr>
<tr>
<td>Kent Core Requirement</td>
<td>3</td>
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<td></td>
<td>See Kent Core Summary on page 2</td>
</tr>
</tbody>
</table>
Critical requirements are boldface in shaded areas

<table>
<thead>
<tr>
<th>Course Subject and Title</th>
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<th>Upper Div.</th>
<th>Min. Grade</th>
<th>Major GPA</th>
<th>Important Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester Seven: [14-15 Credit Hours]</td>
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<tr>
<td>CHEM 40557 Physical Chemistry Laboratory</td>
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<td>2.0</td>
<td>Offered in fall only</td>
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<tr>
<td>Kent Core Requirement</td>
<td>4</td>
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<td>See Kent Core Summary below</td>
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<tr>
<td>CHEM Elective (upper division)</td>
<td>1-2</td>
<td></td>
<td></td>
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<td>See note below; one course must be writing intensive</td>
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<tr>
<td>General Electives (lower or upper division)</td>
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<td></td>
<td>2.0</td>
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<td>Semester Eight: [14 Credit Hours]</td>
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<tr>
<td>CHEM 30106 Analytical Chemistry II</td>
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<td>2.0</td>
<td>Offered in spring only</td>
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<tr>
<td>CHEM 30284 Introductory Biological Chemistry</td>
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<td>2.0</td>
<td>Offered in spring only</td>
</tr>
<tr>
<td>CHEM 40053 Materials Chemistry Laboratory</td>
<td>2</td>
<td></td>
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<td>2.0</td>
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<tr>
<td>General Electives (lower or upper division)</td>
<td>6</td>
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<td></td>
<td>2.0</td>
<td>Number of credits required depends on meeting minimum 121 credit hours and 42 upper-division hours</td>
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</tbody>
</table>

Graduation Requirements Summary

<table>
<thead>
<tr>
<th>Minimum Total Hours</th>
<th>Minimum Upper-Division Hours</th>
<th>Minimum Kent Core Hours</th>
<th>Diversity Course Global / Domestic</th>
<th>Writing-Intensive</th>
<th>Minimum Major GPA</th>
<th>Minimum Overall GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>42</td>
<td>36</td>
<td>CHEM 30107 or CHEM 30108</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

Kent Core Summary

<table>
<thead>
<tr>
<th>Kent Core Categories</th>
<th>Important Notes</th>
<th>Remaining Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition (6-8 credit hours)</td>
<td>Enrollment based on placement test</td>
<td>6-8</td>
</tr>
<tr>
<td>ENG 11002, 11011, 21011; HONR 10197, 10297</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics and Critical Reasoning (3-5 credit hours)</td>
<td>Fulfilled in this major with MATH 12002</td>
<td>0</td>
</tr>
<tr>
<td>Humanities and Fine Arts (9 credit hours)</td>
<td>May fulfill diversity requirement</td>
<td>9</td>
</tr>
<tr>
<td>Minimum one course from humanities in Arts and Sciences category and minimum one course from fine arts category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences (6 credit hours)</td>
<td>May fulfill diversity requirement</td>
<td>6</td>
</tr>
<tr>
<td>Must be selected from two curricular areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Sciences (6-7 credit hours)</td>
<td>Fulfilled in this major with CHEM 10060, CHEM 10061 and PHY 23102</td>
<td>0</td>
</tr>
<tr>
<td>Must include one laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional (6 credit hours)</td>
<td>5 credits fulfilled in this major with PHY 23101; may fulfill diversity requirement</td>
<td>1</td>
</tr>
<tr>
<td>Must be selected from two Kent Core categories</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: CHEM electives (1-2 credit hours), choose from the following:

- CHEM 30107 Analytical Chemistry Laboratory I^W^F
- CHEM 30108 Analytical Chemistry Laboratory II^W^S
- CHEM 40477 Intermediate Organic Chemistry Laboratory^F
- CHEM 40483 Intermediate Organic Chemistry^F

^W^F Fulfills writing-intensive requirement

^W^S Offered in fall only

^F Offered in spring only

A minimum C grade must be earned in either CHEM 30107 or CHEM 30108 to fulfill the writing-intensive requirement.

Note: All courses taken from the list of major program requirements are used in the calculation of the major GPA.

Kent Core
Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student’s major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken for course credit. Visit www.kent.edu/catalog/kent-core for course list.

Diversity Course Requirement
Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean’s approval, by completing one semester of study in another country. Visit www.kent.edu/catalog/diversity for course list.

Writing-Intensive Course Requirement
Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.00) grade. Visit www.kent.edu/catalog/wic for course list.

Upper-Division Requirement
Students must complete a minimum 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.

Foreign Language
Visit www.kent.edu/catalog/foreign-languages for course list.

Page 2 of 2 | Last Updated: 19-May-11/LNHD