Course number, title and credits; total time allocation

<table>
<thead>
<tr>
<th>Course Letter/Number</th>
<th>CEM 241</th>
<th>Credits</th>
<th>4</th>
<th>Title</th>
<th>Organic Chemistry I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture/Discussion</td>
<td>4.0</td>
<td>hrs/semester</td>
<td></td>
<td>Lab</td>
<td>4.0</td>
</tr>
<tr>
<td>Clinical</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</table>

Catalog Description and Pre- and Co-requisites (Same as taxonomy and catalog)

COURSE DESCRIPTION  This course is a comprehensive study of the major class of organic compounds, their structures and reactions. The stereochemical properties and spectra of molecules and their mechanisms of reactions are stressed. The laboratory experiments demonstrate techniques used in organic reactions, synthesis illustrating types of reactions, analysis of major classes of compounds and kinetic studies.

PREREQUISITE:  CEM 142

Knowledge, Skills and Abilities Students Acquire from this Course (Educational Objectives)

Students will develop knowledge, attitudes, and skills in the study of organic chemistry. They will understand how some of the more advanced structural theories of matter explain the physical and chemical properties in organic, and to some extent biological chemistry.

Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus.)

Chemistry 241 supports the following Associates Degree Outcomes:

#4  Students will demonstrate scientific reasoning.
#7  Students will demonstrate critical thinking.

Units/topics of Instruction

Structure Determines Properties
- Alkanes and Cycloalkanes: Introduction to Hydrocarbons
- Alkanes and Cycloalkanes: Conformations and cis-trans Isomers
- Alcohols and Alkyl Halides
- Structure & Preparation of Alkenes: Elimination Reactions
- Addition Reactions to Alkenes
- Stereochemistry
- Nucleophilic Substitution
- Alkynes
- Conjugation in Alkadienes and Allylic Systems
- Arenes and Aromaticity
- Reactions of Arenes: Electrophilic and Nucleophilic Aromatic Substitution

Instructional Techniques and Procedures

Interactive lecture and face-to-face laboratory activities are the instructional techniques of this course.

Instructional Use of Computer or Other Technology

Students will use computer interface instruments in the laboratory and will use a spreadsheet for calculations and graphing applications.

Instructional Materials and Costs to Students

TEXT:  Organic Chemistry, 8th Edition, Francis A. Carey  ($250.00)
LABORATORY MANUAL:  Introduction to Organic Laboratory Techniques, a Microscale Approach, 4th Edition. ($191.75)
CALCULATOR:  A Scientific Calculator is Required
PERIODIC TABLE:  SARGENT WELCH
Skills and abilities students should bring to the course

<table>
<thead>
<tr>
<th>Able to read</th>
<th>Able to compute</th>
</tr>
</thead>
<tbody>
<tr>
<td>a limited amount of material</td>
<td>basic, pre-algebraic problems</td>
</tr>
<tr>
<td>an average amount of material</td>
<td>simple algebraic problems</td>
</tr>
<tr>
<td>an above average amount of material</td>
<td>higher order mathematical problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Able to read</th>
<th>Able to write</th>
</tr>
</thead>
<tbody>
<tr>
<td>relatively easy material</td>
<td>short compositions</td>
</tr>
<tr>
<td>moderately difficult material</td>
<td>medium length compositions</td>
</tr>
<tr>
<td>technical or sophisticated material</td>
<td>lengthy compositions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Able to use technology</th>
<th>Other necessary abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyboard skills/familiar with computer</td>
<td></td>
</tr>
<tr>
<td>computer application</td>
<td></td>
</tr>
<tr>
<td>web navigation</td>
<td></td>
</tr>
</tbody>
</table>

The course is usually scheduled

Day: 
- Fall
- Winter
- Spring

Evening: 
- Fall
- Winter
- Spring

Prepared by ___________________________ Date ___________________________

Approved by Dept. ___________________________ Date ___________________________

Approved by Dean ___________________________ Date ___________________________

Approved by Curr. Comm. ___________________________ Date ___________________________

(Last names, please) Form Revised 12/4/00
**Summary Form**

**TAXONOMY**

(Master Course File)*

*All fields must be completed*

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**Effective Date: Fall, 2011**

*COURSE DESCRIPTION:*

This course is a comprehensive study of the major class of organic compounds, their structures and reactions. The stereochemical properties and spectra of molecules and their mechanisms of reactions are stressed. The laboratory experiments demonstrate techniques used in organic reactions, synthesis illustrating types of reactions, analysis of major classes of compounds and kinetic studies.

**PREREQUISITE:** CEM 142

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**Credit Hours**

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>Credit Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>I=Institutional  C=Cont Ed</td>
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**Billing Credits (BCH)**

<table>
<thead>
<tr>
<th>Billing Credits (BCH)</th>
<th>Continuing Ed Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>15 contact hrs = 1 BCH</td>
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</table>

**Course Fee**

<table>
<thead>
<tr>
<th>Course Fee</th>
<th>Instructor Load (1 BCH = 15 contact hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$57</td>
<td>120</td>
</tr>
</tbody>
</table>

**Maximum Seating Capacity**

<table>
<thead>
<tr>
<th>Maximum Seating Capacity</th>
<th>Instructor Permission Required (Y or N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>N</td>
</tr>
</tbody>
</table>

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**Pass or Fail Course (Y or N)**

<table>
<thead>
<tr>
<th>Pass or Fail Course (Y or N)</th>
<th>Number of times course can be taken for credit (most courses are one time – see Registrar for options)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>1</td>
</tr>
</tbody>
</table>

**Pre-Requisites Required:**

CEM 142

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**Co-Requisites Required:**

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**Special Program Requisites:**

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**Signature of Department Chair / Date**

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**Signature of Academic Dean/ Date**

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**Curriculum Committee Chair / Date**

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**Registrar / Date**

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**ACS Code**

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Catalog Description for CEM 241

CEM 241 Organic Chemistry I (5 CR)

Comprehensive study of the major classes of organic compounds, their structures and reactions. The stereo-chemical properties and spectra (IR and NMR) of molecules and their mechanisms of reactions are stressed. The laboratory experiments demonstrate techniques used in organic reactions, syntheses illustrating types of reactions, analysis of major classes of compounds, and kinetic studies. Prerequisite: CEM 142