**SENATE PROGRAM PROPOSAL FORM**

**for:**
- **CHECK ONE:** [ ] Add, [ ] Change, [ ] Combine, [ ] Drop, [ ] Archive
- **CHECK ONE:** [ ] Degree program, [ ] Minor, [ ] Certificate, [ ] Emphasis area

- **From:** Chemistry
  - **Department:**
  - **Approved By:** Chris Spilling
  - **Department Chair:**
  - **Date:** 3/7/13

- **From:** Arts & Science
  - **School or College:**
  - **Approved By:** Ronald E. Yasbin
  - **Dean:**
  - **Date:** 3/13/13

**Routing:**
- **Initials**
- **Date**
  - Academic Affairs: BAT 3/14/13
  - Graduate School (if applicable): MTA 4/12/13
  - Senate C & I: 
  - Reported to Senate: 
  - Academic Affairs: 

**Title of Degree, Minor, or Certificate Program:** Degrees with Certification to Teach Chemistry in Secondary Schools

**Page(s) and year of the current Bulletin listing:**

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<tr>
<th>Department</th>
<th>Contact Person</th>
<th>Phone #</th>
<th>Proposal received:</th>
<th>No major objections,</th>
<th>Objections</th>
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**Current Bulletin listing:**

**Proposed Bulletin listing:**

**Rationale:**

**Degrees with Certification to Teach Chemistry in Secondary Schools**

One can be certified to teach chemistry at the secondary level with a degree either in Education or in Chemistry. All candidates for certification must enroll in a program that includes Levels I, II, and III course work in the College of Education. The Missouri Department of Elementary and Secondary Education requires that candidates for certification to teach secondary chemistry complete certain Science Core Courses and specialized courses in chemistry.

**Science Core Courses**
- Phil 3380, Philosophy of Science
- BIOL 1831, Introductory Biology I: From Molecules to Organisms
- CHEM 1111, Introductory Chemistry I
- CHEM 1121, Introductory Chemistry II
- BIOL 1202, Environmental Biology, or another environmental science
- PHYSICS 2111, Physics: Mechanics and Heat and
- GEOL 1001, General Geology or
- ATM SCI 1001, Elementary Meteorology or
- ASTRON 1001 or equivalent

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<table>
<thead>
<tr>
<th>Chemistry Endorsement</th>
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<th>Courses are no longer cross-listed with CHEM</th>
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<tbody>
<tr>
<td>CHEM 2223, Quantitative Analysis</td>
<td>CHEM 2223, Quantitative Analysis</td>
<td>Course title changes</td>
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<tr>
<td>CHEM 2612, Organic Chemistry I</td>
<td>CHEM 2612, Organic Chemistry I</td>
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<td>CHEM 2622, Organic Chemistry II</td>
<td>CHEM 2622, Organic Chemistry II</td>
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<td>CHEM 2633, Organic Chemistry Laboratory</td>
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<td>CHEM 3312, Physical Chemistry I or CHEM 3302, Physical Chemistry for the Life Sciences</td>
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<tr>
<td>CHEM 4712, Biochemistry</td>
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<tr>
<td>CHEM 4802 or SEC ED 3240, Curriculum and Methods of Teaching Physical Sciences</td>
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<td>CHEM 4837, Chemistry/Physics Teaching Intern Seminar</td>
<td>SEC ED 4837, Chemistry/Physics Teaching Seminar</td>
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<td>SEC ED 4990, Secondary School Student Teaching</td>
<td>SEC ED 4989, Practicum I: Site based Experience</td>
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<tr>
<td>SEC ED 4990, Secondary School Student Teaching</td>
<td>SEC ED 4990, Practicum II: Site based Experience</td>
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**Bachelor of Arts in Chemistry with Teacher Certification**

Students must complete the B.A. in chemistry requirements, as well as the requirements for teacher certification. (See the College of Education section of this *Bulletin*.) There are a few science courses beyond the minimum listed above.

| PHYSICS 2112, Physics: Electricity, Magnetism, and Optics | PHYSICS 2112, Physics: Electricity, Magnetism, and Optics |                                |
|----------------------------------------------------------|----------------------------------------------------------|                                |
| CHEM 3322, Physical Chemistry II | CHEM 3322, Physical Chemistry II |                                |
| CHEM 3333, Physical Chemistry Laboratory I and one additional advanced laboratory course | CHEM 3333, Physical Chemistry Laboratory I and one additional advanced laboratory course |                                |
| CHEM 3412, Basic Inorganic Chemistry | CHEM 3412, Basic Inorganic Chemistry |                                |

Students earning BA or BS degrees in chemistry must achieve a GPA of 2.0 or higher for the combination of chemistry courses and required related area courses.

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Revised: October, 2008