### CWU Department/Program Assessment Plan Preparation Form

**Department:** Chemistry Department  
**Program:** Bachelor of Science, Bachelor of Science Biochemistry, or Bachelor of Arts

<table>
<thead>
<tr>
<th>Department/Program Goals</th>
<th>Related College Goals</th>
<th>Related University Goals</th>
<th>Method(s) of Assessment (What is the assessment?)</th>
<th>Who/What Assessed (population, item)</th>
<th>When Assessed (term, dates)</th>
<th>Criterion of Achievement (Expectation of how good things should be?)</th>
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</table>
| 1. Offer excellent instruction in chemistry to meet the needs of the variety of undergraduate and graduate students the department serves. | Goal 1  
Goal 3  
Goal 5  
Goal 6 | Goal 1  
Goal 3  
Goal 5  
Goal 6 | - SROI  
- Peer teaching evaluations  
- Student exit portfolios  
- Student exit surveys  
- Alumni surveys  
- ACS exam scores | - Major programs and curricula  
- Chemistry faculty | - Quarterly SROI.  
- Annual department retreat.  
- ACS review every 5 years.  
- Annual review of student exit portfolios. | - Maintain ACS accreditation  
- The teaching performance of all faculty rated satisfactory or better during annual performance reviews.  
- SROI ratings for teaching effectiveness at or above university average.  
- ACS exam scores of chemistry majors at or above national averages.  
- All exit and alumni surveys reflect student satisfaction and confidence in the chemistry training received at CWU.  
- Routine dissemination of courses through distance education. |
| 2. Maintain and update instrument, equipment and computing resources for the quality instruction of graduate and undergraduate students. | Goal 1  
Goal 4  
Goal 6 | Goal 1 | - Monitor age and performance of chemistry instrumentation and software | - Student and research laboratory facilities  
- Student computing facilities | - Routinely by instrument technicians.  
- Annual department retreat. | - All instrumentation and software are modern by the current standards of the discipline.  
- All instrumentation and software are routinely replaced or upgraded as needed. |
| 3. Increase the quality and diversity of undergraduate majors in the various chemistry programs. | Goal 1  
Goal 7 | Goal 1  
Goal 6 | - Number of faculty searches conforming to OEO guidelines for recruiting woman and minority faculty  
- Diversity of student population in chemistry relative to regional | - Chemistry majors, minors, and graduate students  
- Chemistry faculty  
- Faculty activities | - Annual department retreat. | - All faculty searches conform to OEO guidelines.  
- Diversity of student population is reflective of regional and university demographics.  
- At least one-third of faculty involved in outreach activities or STEP program. |
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<th>4. Maintain a high quality graduate program in chemistry.</th>
<th>Goal 1 Goal 3 Goal 4 Goal 5 Goal 6</th>
<th>Goal 1 Goal 3 Goal 5</th>
<th>- Number of students enrolled in MS program - Number and variety of graduate courses offered per year - Dollar amount and number of graduate student stipends - Dollar amount and number of research grants within the department - Number of publications produced by research groups in the chemistry department</th>
<th>- M.S. program and curriculum - Faculty research programs</th>
<th>- Annual department retreat.</th>
<th>- At least 80% of students entering major programs in chemistry successfully obtain their degree.</th>
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<td>5. Maintain an enthusiastic and active faculty.</td>
<td>Goal 1 Goal 3 Goal 4 Goal 6 Goal 7</td>
<td>Goal 1 Goal 3 Goal 5 Goal 6</td>
<td>- Faculty teaching loads. - Dollar amount and number of research grants within the department - Number of publications produced by research groups in the chemistry department - Faculty performance review</td>
<td>- Faculty - Faculty research programs</td>
<td>- Teaching loads reviewed quarterly. - Annual department retreat.</td>
<td>- Research and teaching assistantships for graduate students are competitive with those at comparable institutions. - RA or TA funding is available to every graduate student. - Offer at least four graduate courses per year. - Every research group is supported by internal or external grant funds. - At least two peer reviewed articles are published in international scientific journals by the chemistry department each year.</td>
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<td>- Amount of funding available for professional development of staff</td>
<td>- Number of training sessions, workshops, or other professional development functions attended by staff</td>
<td>- Staff performance review</td>
<td>- Number of staff attending department meetings</td>
<td>- Chemistry department staff</td>
<td>- Staff support opportunities</td>
<td>- Annual department retreat.</td>
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<td>7. Serve the academic community and the general public through scholarly research and service activities.</td>
<td>Goal 1</td>
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<td>Goal 3</td>
<td>Goal 4</td>
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<td>- Dollar amount and number of research grants within the department</td>
<td>- Number of publications produced by research groups in the chemistry department</td>
<td>- Number of faculty memberships in professional organizations / societies</td>
<td>- Number of faculty attending professional conferences</td>
<td>- Number of outreach programs involving chemistry faculty</td>
<td>- Number of faculty involved in outreach programs</td>
<td>- Faculty</td>
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<td>- Grades in relevant courses - Student exit portfolio - Student exit survey -Alumni survey -ACS content exams</td>
<td>- Chemistry majors in all required courses for BS degree in chemistry</td>
<td>- Quarterly - Annual review of student exit portfolios.</td>
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<td>2. Write and speak clearly in the language and style of the discipline.</td>
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<td>- Grades in relevant courses - Student written lab reports - Student research reports for those students who performed research - Student exit portfolio</td>
<td>- Chemistry majors in all required courses for BS degree in chemistry. Course exams require some short answer as well as drawing of chemical structures and diagrams - CHEM 183Lab (written abstracts) - CHEM 361Lab, 363Lab, 382Lab, 383Lab, 431Lab, 452Lab (full or partial lab reports; brief oral presentations) - CHEM 295,395 or 495, student research reports - CHEM 388 poster presentation - CHEM 488 oral presentation</td>
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<td>3. Demonstrate critical thinking skills that utilize qualitative and quantitative problem solving.</td>
<td>- Grades in relevant courses</td>
<td>- ACS content exams</td>
<td>- Chemistry majors in all required courses for BS degree in chemistry</td>
<td>- Grades in laboratory courses</td>
<td>- ACS exams consistent with national averages</td>
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<td>4. Use computers and the modern software of the discipline.</td>
<td>- Grades in CHEM 388 and CHEM 48</td>
<td>- Student exit portfolio</td>
<td>- Grades in laboratory courses. These courses require the use of software for instrumentation control, data analysis, and reporting</td>
<td>- CHEM 388 and 488 - Chemistry majors submitting exit portfolios (all majors)</td>
<td>- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major.</td>
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<td>5. Retrieve and critically analyze chemical literature.</td>
<td>- Course grades in: CHEM 388 - CHEM 488 - Student Research CHEM 295, CHEM 395, and/or CHEM 495 - Student exit portfolio</td>
<td>- CHEM 388 - CHEM 488 - CHEM 295, 395 or 495 (research) - Chemistry majors submitting exit portfolios (all majors)</td>
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<td>- All students receive a grade of C+ or better in laboratory courses.</td>
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- All research students receive a grade of B or better.
7. Work effectively in group situations.

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*Method(s) of assessment should include those that are both direct (tests, essays, presentations, projects) and indirect (surveys, interviews) in nature
**Data needs to be collected and differentiated by location (Ellensburg campus vs University Centers – see NWCCU standard 2.B.2)
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<td>- Chemistry majors in all required courses for BA degree in chemistry</td>
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| Goal 1 | Goal 1 | Goal 1 | - Grades in relevant courses  
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6. Practice health and safety protocols that are integral to the discipline.

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| Demonstrate an ability to individually and collaboratively engage in inquiry and integrate the nature of science. | SCED Goal 1, 3, 4 CHEM Goal 1 | COTS Goal 1, 4, 6 | CWU Goal 1, 6 | • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey  
• Practicum field observation  
• WA pedagogy assessment | All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students | End of major/minor program, prior to student teaching  
• SCED 324  
• Student teaching | Minimum requirement is proficiency for this outcome. Student must provide suitable evidence and reflect on performance relative to associated NSES, NSTA, and WA Comp standards.  
• SCED 324 portfolio performance benchmark proficiency  
• All standards met for WA Pedagogy Assessment |
| Explain and apply fundamental science content concepts, principles, and methods. | SCED Goal 1, 3, 5 CHEM Goal 1 | COTS Goal 1, 4, 6 | CWU Goal 1, 6 | • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey  
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| Demonstrate an ability to effectively facilitate learning for all students. | SCED Goal 2, 3, 4 | COTS Goal 1, 6 | CWU Goal 1, 6 | • Science Program major/minor teaching portfolio, entry to and exit from program survey  
• Practicum field observation  
• WA pedagogy assessment | • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students | 324 | • Student teaching  
• SCED 324 portfolio performance benchmark proficiency  
• All standards met for WA Pedagogy Assessment |
|-----------------------------|-------------------|----------------|---------------|---------------------------------------------------------------|---------------------------------|------------------|---------------------------------------------------------------|
| Create safe, effective learning environments that support inquiry, collaboration, intellectual risk-taking, ethical decision-making, and student | SCED Goal 1, 2, 3, 4 | COTS Goal 1, 6, 7 | CWU Goal 1, 6 | • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey  
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• SCED 324 portfolio performance benchmark proficiency  
• All standards met for WA Pedagogy Assessment |
| Demonstrate an ability to assess teaching and learning outcomes using multiple methods, effectively evaluate teaching and learning effectiveness, and improve practice based on reflection and data. | SCED Goal 2, 3, 4, 7, 8 CHEM Goal 1 | COTS Goal 1, 6 | CWU Goal 1, 6 | Science Program major/minor teaching portfolio, entry to and exit from program survey  
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within collaborative and social networks.

| Participate in a variety of activities that enhance professional development and improve teaching effectiveness. | SCED Goal 2, 7, 8 CHEM Goal 1 | COTS Goal 1, 6 | CWU Goal 1, 6 | • Science Program major/minor teaching portfolio, entry to and exit from program survey  
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