<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>
</tr>
</thead>
<tbody>
<tr>
<td>1. Offer excellent instruction in chemistry to meet the needs of the variety of</td>
<td>Goal 1 Goal 3 Goal</td>
<td>Goal 1 Goal 1 Goal 1</td>
<td>- SEOI</td>
<td>- Major programs and curricula - Chemistry faculty</td>
<td>Quarterly SEOI. - Annual department retreat. - ACS review every 5 years. - Annual review of student exit portfolios.</td>
<td>- Maintain ACS accreditation - The teaching performance of all faculty rated satisfactory or better during annual performance reviews. - SEOI 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.</td>
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<tr>
<td>undergraduate and graduate students the department serves.</td>
<td>Goal 5 Goal 6</td>
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<td>- Peer teaching evaluations - Student exit portfolios - Student exit surveys - Alumni surveys - ACS exam scores</td>
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<tr>
<td>2. Maintain and update instrument, equipment and computing resources for the quality</td>
<td>Goal 1 Goal 1 Goal</td>
<td>Goal 1 Goal 1</td>
<td>- Monitor age and performance of chemistry instrumentation and software</td>
<td>- Student and research laboratory facilities - Student computing facilities</td>
<td>Routinely by instrument technicians. - Annual department retreat.</td>
<td>- All instrumentation and software are modern by the current standards of the discipline. - All instrumentation and software are routinely replaced or upgraded as needed.</td>
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<td>instruction of graduate and undergraduate students.</td>
<td>Goal 4 Goal 6</td>
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<td>3. Increase the quality and diversity of undergraduate majors in the various chemistry</td>
<td>Goal 1 Goal 7 Goal</td>
<td>Goal 1 Goal 1</td>
<td>- Number of faculty searches conforming to OEO guidelines for recruiting woman and minority faculty - Diversity of student population in chemistry relative to regional</td>
<td>- Chemistry majors, minors, and graduate students - Chemistry faculty - Faculty activities</td>
<td>Annual department retreat.</td>
<td>- 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.</td>
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<td>programs.</td>
<td>Goal 6</td>
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<td>4. Maintain a high quality graduate program in chemistry.</td>
<td>Goal 1</td>
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<td>Goal 4</td>
<td>Goal 5</td>
<td>Goal 6</td>
<td>Goal 1</td>
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<tr>
<td>demographics and university averages</td>
<td>- Number of faculty involved in outreach programs designed to increase diversity within our majors population</td>
<td>- Number of students successfully completing major programs in chemistry</td>
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<td>research and university averages</td>
<td>- At least 80% of students entering major programs in chemistry successfully obtain their degree.</td>
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<td>5. Maintain an enthusiastic and active faculty.</td>
<td>Goal 1</td>
<td>Goal 3</td>
<td>Goal 4</td>
<td>Goal 5</td>
<td>Goal 6</td>
<td>Goal 7</td>
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<td>research and teaching assistantships for graduate students are competitive with those at comparable institutions.</td>
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<td>research and teaching assistantships for graduate students are competitive with those at comparable institutions.</td>
<td>- RA or TA funding is available to every graduate student.</td>
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<td>research and teaching assistantships for graduate students are competitive with those at comparable institutions.</td>
<td>- Offer at least four graduate courses per year.</td>
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<td>research and teaching assistantships for graduate students are competitive with those at comparable institutions.</td>
<td>- Every research group is supported by internal or external grant funds.</td>
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<td>- At least two peer reviewed articles are published in international scientific journals by the chemistry department each year.</td>
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- M.S. program and curriculum
- Faculty research programs
- Annual department retreat.
- Teaching loads reviewed quarterly.
- Annual department retreat.
- Teaching loads are reflective of individual professor’s needs and are in alignment with ACS accreditation.
- 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.
- Faculty performance review
6. Maintain an enthusiastic, active staff.

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<td>- Amount of funding available for professional development of staff</td>
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<td>- Number of training sessions, workshops, or other professional development functions attended by staff</td>
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<td>- Staff performance review</td>
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<tr>
<td>- Number of staff attending department meetings</td>
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- Chemistry department staff
- Staff support opportunities
- Annual department retreat

- Sufficient funding is available for all staff to explore professional development opportunities.
- At least one staff member participates in a professional development opportunity each year.
- Annual review of staff performance reflect a record of continued growth and achievement
- 100% of staff attend all department meetings

7. Serve the academic community and the general public through scholarly research and service activities.

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<td>- Dollar amount and number of research grants within the department</td>
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<td>- Number of publications produced by research groups in the chemistry department</td>
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<td>- Number of faculty memberships in professional organizations / societies</td>
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<td>- Number of faculty attending professional conferences</td>
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<td>- Number of outreach programs involving chemistry faculty</td>
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<td>- Number of faculty involved in outreach programs</td>
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- Faculty
- Faculty research programs

- 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.
- All faculty are members of at least one professional organization / society.
- At least half of chemistry faculty attend at least one professional conference each year.
- Department actively involved in at least three outreach activities each year.
- At least one-third of faculty involved in outreach activities or STEP program.
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<th>Student Learning Outcomes (performance, knowledge, attitudes)</th>
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- ACS exams consistent with national averages  
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- CHEM 388 poster presentation  
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<th>3. Demonstrate critical thinking skills that utilize qualitative and quantitative problem solving.</th>
<th>4. Use computers and the modern software of the discipline.</th>
<th>5. Retrieve and critically analyze chemical literature.</th>
<th>6. Practice health and safety protocols that are integral to the discipline.</th>
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<td>Grades in laboratory courses</td>
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<td>- ACS exams consistent with national averages</td>
<td>- All students receive a grade of C+ or better on their oral presentation in CHEM 488</td>
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| 7. Work effectively in group situations. | Goal 1 Goal 3 | Goal 1 Goal 7 | Goal 1 Goal 6 | - Grades in laboratory courses  
- Grades in student research courses: CHEM 295, CHEM 395, and/or CHEM 495  
- Exit Survey | - Quarterly review of student exit portfolios. | - All students receive a grade of C+ or better in laboratory courses.  
- All research students receive a grade of B or better.  
- Reflective assessment in student exit portfolio. |

*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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- All students receive a grade of C+ or better on their oral presentation in CHEM 488  
- All artifacts of writing in exit portfolio are rated at satisfactory or better. |
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- Chemistry majors in all required courses for BA degree in chemistry  
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| 4. Use computers and the modern software of the discipline. | Goal 1  
Goal 2 | Goal 1 | Goal 1 | - Grades in laboratory courses  
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- Chemistry majors in laboratory courses. These courses require the use of software for instrumentation control, data analysis, and reporting  
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- Student exit portfolio  
- CHEM 388  
- CHEM 488  
- CHEM 295, 395 or 495 (research)  
- Chemistry majors submitting exit portfolios (all majors)  
- Quarterly  
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<td>- Annual review of student exit</td>
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| 7. Work effectively in group situations. | Goal 1 Goal 3 | Goal 1 Goal 7 | Goal 1 Goal 6 | - Grades in laboratory courses  
- Grades in student research courses: CHEM 295, CHEM 395, and/or CHEM 495  
- Exit Survey | - Quarterly review of student exit portfolios. | - All students receive a grade of C+ or better in laboratory courses.  
- All research students receive a grade of B or better.  
- Reflective assessment in student exit portfolio. |

*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)**

***Timing of assessment should be identified at different transition points of program (i.e., admission, mid-point, end-of-program, post-program)**
### CWU Student Learning Outcome Assessment Plan Preparation Form

**Department:** Chemistry/Science Education  
**Program:** Chemistry Teaching

<table>
<thead>
<tr>
<th>Student Learning Outcomes (performance, knowledge, attitudes)</th>
<th>Related Program/Departmental Goals</th>
<th>Related College Goals</th>
<th>Related University Goals</th>
<th>Method(s) of Assessment (What is the assessment?)</th>
<th>Who Assessed (Students from what courses – population)**</th>
<th>When Assessed (term, dates) ***</th>
<th>Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)</th>
</tr>
</thead>
</table>
| 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  
• Practicum field | All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students | End of major/minor program, prior to student teaching  
SCED | 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. |
| Demonstrate an ability to effectively facilitate learning for all students. | SCED Goal 2, 3, 4 CHEM Goal 1 | 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 CHEM Goal 1 | 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  
• Practicum field | • 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 |
| 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  
• 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 |
| Demonstrate an ability to make science personally and socially relevant to individual and community by incorporating current events | SCED Goal 1, 2, 4 CHEM Goal 1 | COTS Goal 1, 5, 6 | CWU Goal 4, 6 | • Science Program major/minor teaching portfolio, entry to and exit from program survey  
• Practicum field | • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students | • End of major/minor program, prior to 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 |
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  
• 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  
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