

CWU Department/Program Assessment Plan Preparation Form

Department: Chemistry Department

Program: Bachelor of Science, Bachelor of Science Biochemistry, or Bachelor of Arts

Department/Program Goals	Related College Goals	Related University Goals	Method(s) of Assessment (What is the assessment?)	Who/What Assessed (population, item)	When Assessed (term, dates)	Criterion of Achievement (Expectation of how good things should be?)
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	- SEOI - Peer teaching evaluations - Student exit portfolios - Student exit surveys - Alumni surveys - ACS exam scores	- Major programs and curricula - Chemistry faculty	- Quarterly SEOI. - 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. - 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.
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.

			<p>demographics and university averages</p> <ul style="list-style-type: none"> - Number of faculty involved in outreach programs designed to increase diversity within our majors population - Number of students successfully completing major programs in chemistry 			<ul style="list-style-type: none"> - At least 80% of students entering major programs in chemistry successfully obtain their degree.
4. Maintain a high quality graduate program in chemistry.	<ul style="list-style-type: none"> Goal 1 Goal 3 Goal 4 Goal 5 Goal 6 	<ul style="list-style-type: none"> Goal 1 Goal 3 Goal 5 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - M.S. program and curriculum - Faculty research programs 	<ul style="list-style-type: none"> - Annual department retreat. 	<ul style="list-style-type: none"> - 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.
5. Maintain an enthusiastic and active faculty.	<ul style="list-style-type: none"> Goal 1 Goal 3 Goal 4 Goal 6 Goal 7 	<ul style="list-style-type: none"> Goal 1 Goal 3 Goal 5 Goal 6 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Faculty - Faculty research programs 	<ul style="list-style-type: none"> - Teaching loads reviewed quarterly. - Annual department retreat. 	<ul style="list-style-type: none"> - 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

						files reflect a record of continued growth and achievement
6. Maintain an enthusiastic, active staff.	Goal 1 Goal 3 Goal 4	Goal 1 Goal 3 Goal 6	<ul style="list-style-type: none"> - Amount of funding available for professional development of staff - Number of training sessions, workshops, or other professional development functions attended by staff - Staff performance review - Number of staff attending department meetings 	<ul style="list-style-type: none"> - Chemistry department staff - Staff support opportunities 	<ul style="list-style-type: none"> - Annual department retreat. 	<ul style="list-style-type: none"> - 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.	Goal 1 Goal 3 Goal 4 Goal 5	Goal 1 Goal 4 Goal 5	<ul style="list-style-type: none"> - Dollar amount and number of research grants within the department - Number of publications produced by research groups in the chemistry department - Number of faculty memberships in professional organizations / societies - Number of faculty attending professional conferences - Number of outreach programs involving chemistry faculty - Number of faculty involved in outreach programs 	<ul style="list-style-type: none"> - Faculty - Faculty research programs 		<ul style="list-style-type: none"> - 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.

CWU Student Learning Outcome Assessment Plan Preparation Form
 Department of Chemistry
 Program: Bachelor of Science in Chemistry

Student Learning Outcomes (performance, knowledge, attitudes)	Related Program/ Departmental Goals	Related College Goals	Related University Goals	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses – population)**	When Assessed (term, dates)***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
1. Apply the standard technical information and perform experimental techniques of analytical, biochemistry, inorganic, organic, and physical chemistry.	Goal 1 Goal 2	Goal 1	Goal 1	- Grades in relevant courses - Student exit portfolio - Student exit survey - Alumni survey - ACS content exams	- Chemistry majors in all required courses for BS degree in chemistry	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages - All students' portfolio components will be rated at satisfactory or higher.
2. Write and speak clearly in the language and style of the discipline.	Goal 1	Goal 1	Goal 1	- Grades in relevant courses - Student written lab reports - Student research reports for those students who performed research - Student exit portfolio	- 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	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - 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.

3. Demonstrate critical thinking skills that utilize qualitative and quantitative problem solving.	Goal 1	Goal 1	Goal 1	- Grades in relevant courses - ACS content exams	- Chemistry majors in all required courses for BS degree in chemistry	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages
4. Use computers and the modern software of the discipline.	Goal 1 Goal 2	Goal 1	Goal 1	- Grades in laboratory courses - Grades in CHEM 388 and CHEM 48 - Student exit portfolio	- Chemistry majors in laboratory courses. These courses require the use of software for instrumentation control, data analysis, and reporting - CHEM 388 and 488 - Chemistry majors submitting exit portfolios (all majors)	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in laboratory courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - All students receive a grade of C+ or better on their oral presentation in CHEM 488 - The research or lab report component in the students' portfolio will be rated at satisfactory or higher.
5. Retrieve and critically analyze chemical literature.	Goal 1	Goal 1	Goal 1	Course grades in: -CHEM 388 -CHEM 488 -Student Research CHEM 295, CHEM 395, and/or CHEM 495 - Student exit portfolio	- CHEM 388 - CHEM 488 - CHEM 295, 395 or 495 (research) - Chemistry majors submitting exit portfolios (all majors)	- Quarterly - Annual review of student exit portfolios.	- All students receive a grade of C+ or better on their poster presentation in CHEM 388 - All students receive a grade of C+ or better on their oral presentation in CHEM 488 - The research report component in the students' portfolio will be rated at satisfactory or higher.
6. Practice health and safety protocols that are integral to the discipline.	Goal 1	Goal 1	Goal 1	- Grades in laboratory courses	- Chemistry majors in laboratory courses. - Chemistry majors working in research labs.	- Quarterly	- All students receive a grade of C+ or better in laboratory courses. - All research students receive a grade of B or better.

7. Work effectively in group situations.	Goal 1 Goal 3	Goal 1 Goal7	Goal 1 Goal 6	<ul style="list-style-type: none"> - Grades in laboratory courses - Grades in student research courses: CHEM 295, CHEM 395, and/or CHEM 495 - Exit Survey 		<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - 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.
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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)

***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 of Chemistry
 Program: Bachelor of Arts in Chemistry

Student Learning Outcomes (performance, knowledge, attitudes)	Related Program/ Departmental Goals	Related College Goals	Related University Goals	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses – population)**	When Assessed (term, dates)***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
1. Apply the standard technical information and perform experimental techniques of analytical, biochemistry, inorganic, organic, and physical chemistry.	Goal 1 Goal 2	Goal 1	Goal 1	- Grades in relevant courses - Student exit portfolio - Student exit survey -Alumni survey -ACS content exams	- Chemistry majors in all required courses for BA degree in chemistry	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages - All students' portfolio components will be rated at satisfactory or higher.
2. Write and speak clearly in the language and style of the discipline.	Goal 1	Goal 1	Goal 1	- Grades in relevant courses - Student written lab reports - Student research reports for those students who performed research - Student exit portfolio	- Chemistry majors in all required courses for BA degree in chemistry. Course exams require some short answer as well as drawing of chemical structures and diagrams - CHEM 183Lab (written abstracts) - full or partial lab reports; brief oral presentations: CHEM 361Lab, 363Lab (if taken), 382Lab, 383Lab, 431Lab (if taken), 452Lab (if taken) - CHEM 295,395 or 495, student research reports - CHEM 388 poster presentation - CHEM 488 oral presentation	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - 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.

3. Demonstrate critical thinking skills that utilize qualitative and quantitative problem solving.	Goal 1	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in relevant courses - ACS content exams 	<ul style="list-style-type: none"> - Chemistry majors in all required courses for BA degree in chemistry 	<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages
4. Use computers and the modern software of the discipline.	Goal 1 Goal 2	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in laboratory courses - Grades in CHEM 388 and CHEM 48 - Student exit portfolio 	<ul style="list-style-type: none"> - Chemistry majors in laboratory courses. These courses require the use of software for instrumentation control, data analysis, and reporting - CHEM 388 and 488 - Chemistry majors submitting exit portfolios (all majors) 	<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - Graduates maintain 2.0 for course average and an average of 2.25 in laboratory courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - All students receive a grade of C+ or better on their oral presentation in CHEM 488 - The research or lab report component in the students' portfolio will be rated at satisfactory or higher.
5. Retrieve and critically analyze chemical literature.	Goal 1	Goal 1	Goal 1	<ul style="list-style-type: none"> Course grades in: -CHEM 388 -CHEM 488 -Student Research CHEM 295, CHEM 395, and/or CHEM 495 - Student exit portfolio 	<ul style="list-style-type: none"> - CHEM 388 - CHEM 488 - CHEM 295, 395 or 495 (research) - Chemistry majors submitting exit portfolios (all majors) 	<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - All students receive a grade of C+ or better on their oral presentation in CHEM 488 - The research report component in the students' portfolio will be rated at satisfactory or higher.
6. Practice health and safety protocols that are integral to the discipline.	Goal 1	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in laboratory courses 	<ul style="list-style-type: none"> - Chemistry majors in laboratory courses. - Chemistry majors working in research labs. 	<ul style="list-style-type: none"> - Quarterly 	<ul style="list-style-type: none"> - All students receive a grade of C+ or better in laboratory courses. - All research students receive a grade of B or better.

7. Work effectively in group situations.	Goal 1 Goal 3	Goal 1 Goal7	Goal 1 Goal 6	<ul style="list-style-type: none"> - Grades in laboratory courses - Grades in student research courses: CHEM 295, CHEM 395, and/or CHEM 495 - Exit Survey 		<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - 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.
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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)

***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 of Chemistry
 Program: Bachelor of Science in Biochemistry

Student Learning Outcomes (performance, knowledge, attitudes)	Related Program/ Departmental Goals	Related College Goals	Related University Goals	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses – population)**	When Assessed (term, dates)***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
1. Apply the standard technical information and perform experimental techniques of analytical, biochemistry, inorganic, organic, and physical chemistry.	Goal 1 Goal 2	Goal 1	Goal 1	- Grades in relevant courses - Student exit portfolio - Student exit survey -Alumni survey -ACS content exams	- Chemistry majors in all required courses for BS degree in Biochemistry	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages - All students' portfolio components will be rated at satisfactory or higher.
2. Write and speak clearly in the language and style of the discipline.	Goal 1	Goal 1	Goal 1	- Grades in relevant courses - Student written lab reports - Student research reports for those students who performed research - Student exit portfolio	- Chemistry majors in all required courses for BS degree in Biochemistry. Course exams require some short answer as well as drawing of chemical structures and diagrams - CHEM 183Lab (written abstracts) - Full or partial lab reports; brief oral presentations: CHEM 361Lab, 363Lab, 382Lab, 383Lab (if taken), 431Lab, 452Lab (if taken) - CHEM 295,395 or 495, student research reports - CHEM 388 poster presentation - CHEM 488 oral presentation	- Quarterly - Annual review of student exit portfolios.	- Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - 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.

3. Demonstrate critical thinking skills that utilize qualitative and quantitative problem solving.	Goal 1	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in relevant courses - ACS content exams 	<ul style="list-style-type: none"> - Chemistry majors in all required courses for BS degree in Biochemistry 	<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - Graduates maintain 2.0 for course average and an average of 2.25 in courses within the major. - ACS exams consistent with national averages
4. Use computers and the modern software of the discipline.	Goal 1 Goal 2	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in laboratory courses - Grades in CHEM 388 and CHEM 48 - Student exit portfolio 	<ul style="list-style-type: none"> - Chemistry majors in laboratory courses. These courses require the use of software for instrumentation control, data analysis, and reporting - CHEM 388 and 488 - Chemistry majors submitting exit portfolios (all majors) 	<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - Graduates maintain 2.0 for course average and an average of 2.25 in laboratory courses within the major. - All students receive a grade of C+ or better on their poster presentation in CHEM 388 - All students receive a grade of C+ or better on their oral presentation in CHEM 488 - The research or lab report component in the students' portfolio will be rated at satisfactory or higher.
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6. Practice health and safety protocols that are integral to the discipline.	Goal 1	Goal 1	Goal 1	<ul style="list-style-type: none"> - Grades in laboratory courses 	<ul style="list-style-type: none"> - Chemistry majors in laboratory courses. - Chemistry majors working in research labs. 	<ul style="list-style-type: none"> - Quarterly 	<ul style="list-style-type: none"> - All students receive a grade of C+ or better in laboratory courses. - All research students receive a grade of B or better.

7. Work effectively in group situations.	Goal 1 Goal 3	Goal 1 Goal7	Goal 1 Goal 6	<ul style="list-style-type: none"> - Grades in laboratory courses - Grades in student research courses: CHEM 295, CHEM 395, and/or CHEM 495 - Exit Survey 		<ul style="list-style-type: none"> - Quarterly - Annual review of student exit portfolios. 	<ul style="list-style-type: none"> - 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.
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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)

***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

Student Learning Outcomes (performance, knowledge, attitudes)	Related Program/ Departmental Goals	Related College Goals	Related University Goals	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses – population)**	When Assessed (term, dates) ***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
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	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey • Practicum field observation • WA pedagogy assessment 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching • SCED 324 • Student teaching 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey • Practicum field 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching • SCED 	<ul style="list-style-type: none"> • Minimum requirement is proficiency for this outcome. Student must provide suitable evidence and reflect on performance relative to associated NSES, NSTA, and WA Comp

				<p>observation</p> <ul style="list-style-type: none"> • WA pedagogy assessment • Major Field Test - Biology 		<p>324</p> <ul style="list-style-type: none"> • Student teaching 	<p>standards.</p> <ul style="list-style-type: none"> • SCED 324 portfolio performance benchmark proficiency • All standards met for WA Pedagogy Assessment
<p>Demonstrate an ability to effectively facilitate learning for all students.</p>	<p>SCED Goal 2, 3, 4 CHEM Goal 1</p>	<p>COTS Goal 1, 6</p>	<p>CWU Goal 1, 6</p>	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, entry to and exit from program survey • Practicum field observation • WA pedagogy assessment 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching • SCED 324 • Student teaching 	<ul style="list-style-type: none"> • 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
<p>Create safe, effective learning environments that support inquiry, collaboration, intellectual risk-taking, ethical decision-making, and student</p>	<p>SCED Goal 1, 2, 3, 4 CHEM Goal 1</p>	<p>COTS Goal 1, 6, 7</p>	<p>CWU Goal 1, 6</p>	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, WEST-E content assessment, entry to and exit from program survey • Practicum field 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching 	<ul style="list-style-type: none"> • Minimum requirement is proficiency for this outcome. Student must provide suitable evidence and reflect on performance relative to associated NSES, NSTA, and WA Comp

construction of knowledge.				<p>observation</p> <ul style="list-style-type: none"> • WA pedagogy assessment 		<ul style="list-style-type: none"> • SCED 324 • Student teaching 	<p>standards.</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, entry to and exit from program survey • Practicum field observation • WA pedagogy assessment 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching • SCED 324 • Student teaching 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, entry to and exit from program survey • Practicum field 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching 	<ul style="list-style-type: none"> • Minimum requirement is proficiency for this outcome. Student must provide suitable evidence and reflect on performance relative to associated NSES, NSTA, and WA Comp

within collaborative and social networks.				<p>observation</p> <ul style="list-style-type: none"> • WA pedagogy assessment 		<ul style="list-style-type: none"> • SCED 324 • Student teaching 	<p>standards.</p> <ul style="list-style-type: none"> • SCED 324 portfolio performance benchmark proficiency • All standards met for WA Pedagogy Assessment
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	<ul style="list-style-type: none"> • Science Program major/minor teaching portfolio, entry to and exit from program survey • Practicum field observation • WA pedagogy assessment 	<ul style="list-style-type: none"> • All Biology, Chemistry, Earth Science, and Physics Teaching major and minor students 	<ul style="list-style-type: none"> • End of major/minor program, prior to student teaching • SCED 324 • Student teaching 	<ul style="list-style-type: none"> • 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

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***Timing of assessment should be identified at different transition points of program (i.e., admission, mid-point, end-of-program, post-program)