

## 2021-2022 Transfer Program Audit Report FALL - Chemistry

### PROGRAM QUALITY – TRANSFERABILITY:

1. Discuss how your department determines that the courses offered are still viable and relevant?

Currently, and in part because one out of two of our full-time faculty has been the Division Chair, not a lot of attention has been given to course/curriculum updates on a regular, recurring basis. That being said, we have informal ways to review our content and curriculum compared to other colleges as well as internally with our own sequencing.

We are in communication with other community colleges via our state-wide organization, WCCTA (Washington College Chemistry Teacher's Association). We share resources and have conversations at the annual conference about relevance of syllabi and topics covered in our various courses.

As a department, we have been meeting every other week for the past two years to talk about aligning curriculum for the faculty that are teaching sections of the same course (specifically CHEM&121). We have also, as part of our assessment work in the past couple years, looked at the alignment between the CHEM&121 and CHEM&131 courses, which has changed some of the ways we present material in CHEM&121 (specifically intermolecular forces, polarity, and buffers). CHEM&121 is used as a prep-Gen Chem course, so we have altered the way Lewis Dot structures have been taught in order to make the transition between CHEM&121 and CHEM&161 less jarring for the students.

2. Does course curriculum satisfy DTA requirements? How do you know? What needs to change?

Yes. All of the courses we offer are either NS electives or MS electives. They also can fit in as general and specific electives. We have not identified any changes needed at this time.

3. Please construct a table to show all courses offered by your department and how they transfer to CWU, EWU, and WSU. Identify any courses that do not transfer or transfer as general electives.

### Chemistry

#### BBCC

#### Course

Number	BBCC Course Name	WSU	CWU	EWU	UW
CHEM 105	Chemical Concepts	CHEM 1XX (Elective - PSCI)	Not a direct equivalent but will count towards Natural Sciences GER 'C'	No Equivalent	CHEM 1XX
CHEM 110	Chemical Concepts with Lab	CHEM 1XX (Elective - PSCI Lab)	CHEM 101	No Equivalent	CHEM 1XX
CHEM 121	Introductory Chemistry	CHEM 101 (PSCI Lab)	CHEM 111	CHEM 161	CHEM 120
CHEM 131	Intro to Organic and Biochem	CHEM 102	CHEM 112	CHEM 162	CHEM 220
CHEM 161	General Chemistry I	CHEM 1XXL (Elective - PSCI Lab)	CHEM 181	CHEM 171	CHEM 1XX
CHEM 162	General Chemistry II	CHEM 1XXL (Elective - PSCI Lab)	CHEM 182	CHEM 172	CHEM 1XX
CHEM 163	General Chemistry III	CHEM 1XXL (Elective)	CHEM 183	CHEM 173	CHEM 1XX

CHEM 161 AND 162	Gen. Chem I and II	CHEM 105 (PSCI Lab)			
CHEM 161, 162, 163	Gen. Chem FULL series	CHEM 105 and CHEM 106			CHEM 142, 152, 162
CHEM 162 and 163	Gen. Chem II and III	CHEM 106			

PSCI - Physical Sciences

UCORE

4. If some of your courses are not transferring to universities as you expected, what information and/or assistance do you need to help you resolve these transfer issues?

CHEM&105 and &110 are not listed as filling general chemistry requirements at many of the schools, but are allowed as general education electives for many baccalaureate programs at the major Universities our student transfer to. We do not see this as problematic from a transfer perspective at this point.

**ADVISING RESOURCES:**

5. Please review your department catalog and website information. Is the information current and accurate? What changes need to be made or would you like to make to better assist students?

Website: Removing the "Transfer Equivalencies" link and maybe replace with links to transfer guides for big 3 schools (CWU, EWU, WSU). Need to add CHEM&110 to our course offerings. Need photo of Aaron. Maybe add Nick? These suggestions were discussed in follow up with Elijah Bozin, who is helping to update the website templates for all of the programs.

Catalog: Need actual emails for Sarah and Lindsay, not just chm@bigbend.edu (which I think just goes to Lindsay). Otherwise, language and information looks up to date.

6. Has your department developed advising resources/maps to assist students majoring in your discipline or in a related field? Please describe these advising resources/maps. Have you considered developing transfer resources (such as four-year advising maps) for students intending to transfer to CWU, EWU, or WSU and major in your discipline or in a related field? How could BBCC assist you in developing these resources?

We have the advising map for the AS-T in pre-Chemistry. It matches the catalog and is still current with both our offerings, as well as transfer needs. We would like to better advertise the way that courses transfer to our pipeline schools. We have this information (transfer equivalencies) on our Chemistry program web page, but it needs updating. Elijah Bozin is working with us on highlighting this information and making it clearer.

**SCHEDULING:**

Please review your course offerings and enrollments over the last three years as well as the FTE information for your department.

7. Discuss how the scheduling for your courses has been evaluated. Describe how scheduling has been altered or maintained to meet the needs of other programs or populations of students.

Course scheduling in terms of what quarters classes are offered has remained consistent and is alignment with the needs of other Math/Science offerings, as well as Allied Health. In terms of days, times, and modalities of courses, we work within our Department, with the Division, and with our Dean about the best ways we can teach schedules that work around our other personal and professional obligations while still serving the needs of our students. We have tried offering classes fully online (by virtue of the pandemic), have started playing around with hybrid offerings, and have tried evening

CHEM&121 sections (which did not work very well). We remain open to being flexible to what best fits for our student populations and we collect data every time we make changes to correlate to student success. This helps to inform our decision-making regarding scheduling (both quarter to quarter and on an annual basis).

8. Has this program considered providing other options for offering the program content; such as, online, hybrid, nights, competency-based, weekends, etc? Discuss.
  - a. If yes, what is being considered and why?

Online, Hybrid, Night – modality of lecture and lab. We had to consider/try some of these because of the pandemic, but now that we are coming back, we are trying to take what we liked and worked well for students and keep those options/resources available in future modalities.

- b. If no, is this something that should be considered and why/why not?

We are not going to offer night sections of the CHEM&121 again any time soon. This is not to say we would never consider them, but it did not seem like the best modality/time for student success. Students did not consistently show up to class, they were not engaged when they did show up, they were not completing work outside of the class time, and it made for long, frustrating days for our faculty.

We are not currently considering competency-based credit options – wouldn't prepare students for next steps (of transfer or allied health programming) - nor weekends – there is no real cohort or expressed need from our student population.

9. Discuss future plans for annual scheduling based on this audit review. Please share how annual scheduling will need to change to meet future student needs as well as any department needs you have identified with respect to instruction.

For the General Chemistry series (CHEM&161, &162, &163): we are interested in potentially offering a trailing sequence. This could help for some of the students that struggle in first quarter or do not come in with the pre-req. We need to reevaluate the Math pre-req (currently MATH 099 or placement into MATH&141) or look into CHEM 139 or CHEM 140 as possible offerings to help bolster student success. The Department has been in communication with the Agriculture program (a major source of students in the series, but those students tend to come in underprepared in Math and traditionally struggle) about ways we can better serve our joint students. Upping the Math pre-req or having a designated Prep Chem course (not just CHEM&121) might be possible solutions that could lead to better student success and decrease the time to completion for those students.

For all of our classes: we are continuing to look to get back to fully face-to-face (particularly for labs), but trying to learn from our best practices (online testing for more lecture time, review, community building) – maybe maintaining Labster for pre-labs or virtual options for missed labs.

Another thing we have discussed as a Department is thinking about CHEM&131 once per year, though twice per year is perfectly fine. The biggest driving force for this thinking comes from lower enrollment in it the past couple years – we maybe need more data around repeaters in the course, needs of Allied Health, and maybe identifying some of the main reasons the students taking it need the course. Long term, we would like the opportunity to look at developing the 121, 122, 123 series.

#### **TRANSFER PARTNERSHIPS:**

10. Provide information about how this department is involved in building and/or maintaining specific partnerships/relationships with one or more of our three transfer institutions (WSU, CWU, EWU).

List and identify the partners/transfer institutions, describe the relationships that have been established, and what is planned for the future to establish better connections with our transfer institutions.

CWU – we are pursuing a grant that partners 2-year and 4-year program pathways together. The emphasis of the program pathways we have selected are Chemistry and Geology, but the hope is to scale this up to the other sciences (and Math). The grant provides funding and a means by which to have more regular communication about advising, program alignment, and what we can work together to do to eliminate the barriers that our students experience trying to transfer from Big Bend to CWU.

CWU – Lindsay is on the Chemistry Department's Professional Advisory Council (PAC) and has been for the past 4 years. She was selected for this position based on the fact that she is an alumna of the program and works at a community college. There are 2 meetings per year for this group and it helps disseminate information about CWU's program and the various challenges, new directions, etc. they are experiencing.

CWU – Lindsay has worked with Dr. Tim Sorey on SCED 542 – Teaching Science in the Community College every other year (3 times and a 4<sup>th</sup> this Spring). This is a graduate level course where Lindsay shares in the lecture responsibility for the content piece and the students come to Big Bend's campus to guest teach a lecture in their field of study. It has been a great partnership and experience in the past. Brian Marion, our Geology and Environmental Science instructor, came from the first cohort that Lindsay helped with.

EWU – Lindsay has started conversations with the Chair of the Mechanical Engineering and Technology Department. Kathleen and Jim Hamm had worked with him on aligning curriculum for the Engineering students here at Big Bend. The hope is that we can create a new path for communication since many of the folks involved in the original planning of this are now retired. This does not have anything to do with Chemistry, directly, but the Engineering students all need to take the General Chemistry series, so it impacts our students/advisees, potentially.

#### **CAREER GUIDANCE:**

11. How does your department provide career counseling with information on employment trends, wages, and opportunities to assist students plan their education? What resources do you need to assist you in providing career counseling information to your students and advisees?

We currently do not provide career counseling in any sort of organized or formal way. If students are interested in careers in Chemistry (which is rare), then information is shared during advising sessions regarding the AS-T in Chemistry, what different programs at state institutions look like, and the appropriate level of credential for the job they are interested in. This is rare, however. There are new resources being developed for the websites that have career information that will give overviews of the job duties, expected salaries, desired credentials, etc. We have been working with Elijah Bozin to best identify the most common career paths for potential chemists. In terms of resources, the work that Elijah is doing right now is very helpful and probably sufficient for our current needs.