

2021-2022 Transfer Program Audit Report FALL

PROGRAM QUALITY – TRANSFERABILITY:

1. Discuss how your department determines that the courses offered are still viable and relevant?
 Almost all of the courses in the Biology/Botany department are required for LS, NS, Biology Majors, or Nursing. We would like to expand our LS and NS course offerings for variety of student choice. NUTR is needed for running start health; would like to find an alternative course for running start so that NUTR was reserved for those needing a science course or for Allied Health pathways.
2. Does course curriculum satisfy DTA requirements? How do you know? What needs to change?
 Yes, all are either LS or NS. No changes.
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.

BCC CN	WSU	CWU	EWU	UW
BIOL 104	BIOL 1XX (Elective)	BIOL Elective - lower division	No Equivalent	No Equivalent
BIOL&100	BIOL 102 - General Biology (BSCI LAB)	BIOL 101	BIOL 100	BIOL 100
BIOL&160	BIOL 102 - General Biology (BSCI LAB)	No Equivalent	BIOL 100	No Equivalent
ENVS&100	SOE 1XX (BSCI)	GenEd Req - 'K8'	ENVS 100	ESRM 100
GEOL&101	SOE 101 (PSCI)	GEOL 101	GEOL 100	ESS 1XX
NUTR&101	BIOL 140 (BSCI)	NUTR 101	FNDT356	UW 1XX
BIOL&241	BIOL 2XXL (Elective-BSCI Lab)	No Equivalent	BIOL 233-NON BIO majors	BIOL 2XX
BIOL&242	BIOL 2XXL (Elective-BSCI Lab)	BIOL 201	BIOL 234-NON BIO majors	BIOL 2XX
BIOL&241 AND 242 (AS A SERIES)	BIOL 2XXL AND BIOL 251	BIOL 355 and 356		BIOL 118, 119, B STR 301
BIOL&260	MBIOS 101 (BSCI lab)	BIOL 322	BIOL 235	MICROM 2XX

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?
 Biol 104 was designed for our own pre-nursing students and is not currently being taught, so no changes needed. I contacted CWU to ask about the Biol&160 course and why it isn't transferring as at least a Biology 100. They still have BIOL&211 on their transfer guide, so potentially it just needs updating. Will be emailing Mary.CairnsPark@cwu.edu to ask about issue and what we need to do. I'm not exactly sure what "GenEdReq Knowledge Area 8" means, so I will need to discuss with someone at CWU (or Lindsay). I assume it means a science elective, similar to how WSU codes it. All of those at UW seem to have weird transfers, so maybe we need to have all of our science courses evaluated by someone there – not sure of how this process is initiated.

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?
Catalog was reviewed Spring 2021 and is accurate. Some modifications to the website faculty information needs to be updated (pictures added) and titles made more consistent. Links on website link to the correct pages in the catalog.
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?
Currently we use the AS-T 1 Biology Pre-major, pre-nursing, and nursing maps to guide our courses. The linked one is the AS-T 1 map. We do not have specific resources for the other institutions, nor do we have plans to develop them. Biology majors are on a variety of paths, and directing them to their future universities' Biology department sites is the most beneficial.
BBCC could develop generic sites for each of these three universities with the details about the oddities of each, such as WSU needing a writing portfolio. One person could update them yearly and all students would have access to these. We could potentially even get someone from that university to write up a short one-page for us to post for them with these details.

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.
We mostly schedule based on demand. We make sure that our classes either align or don't conflict for the following situations:
- BIOL&160 always has an option that would allow them to take a CHEM&121 at the same time.
 - BIOL&241 and 242 allow completion of series in time for applications to nursing program(s).
 - Micro is offered in the Fall so that student who are IN the nursing program can take it.
- We altered the Micro pre-reqs to help with the scheduling issues of many students wanting it in Spring, but not actually needing it until the next year. This allows the students that really need to complete it in Spring better access to seats and avoids overloads for the instructor.
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?
 - b. If no, is this something that should be considered and why/why not?
- Yes, we have increased our variety of options. We plan on making an online/evening pathway for pre-nursing a bi-annual option to accommodate working students. We offer a variety of modalities for the LS and NS course for nonmajors.
ENVS&100 is updating curriculum to be more "project-based" versus traditional course to meet the needs of students. This class is often taken by nonmajors and the change in modality should not only increase student learning, but ability to apply the knowledge to their own lives.
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.
Annual scheduling hasn't changed much, and probably won't change. We will continue to offer courses that meet the student demand and DTA. We would like to offer more "fun" science courses in the future for options for the LS or NS students just taking them for the DTA. Our current course

offerings in this area are very traditional science courses, many more courses that could spark students' interest in science could be designed and taught.

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.

We have no current partnerships. We are all new (all hired within the last 5 years) and have spent that time developing curriculum and getting to know our program. We do not have any immediate plans for building these at this time.

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 do not have any, we would refer the student to Career Services if they asked us about this. A computer program that I could type in the career and it spit out the information would be what is needed.

2021-2022 Transfer Program Audit Report WINTER

PROGRAM QUALITY – INSTRUCTION:

1. Select all methods that are used by your department to integrate the academic knowledge and skills of your students and ensure that they are taught with the same coherence and rigor as all other students. Please provide short descriptions of each selection.

Contextualized Instruction

Case Studies in Biology 160. Environmental science is taught around “stories”. The revised version of Biology 100 will be “topics-based”.

Team-Teaching

Math-First Initiatives

College-Level Core Curriculum

Teach all courses to the MCO

College-Wide Student Learning Outcomes

Teach all courses to the MCO – assess IOs according to 7-year plan

STEM Initiatives

Tutoring

Flipped Classrooms

Most of Mariah’s courses (Biology 160, Biology 100, and ENVS100) require students to prepare before class with traditional instruction so that discussions or activities can take place in class.

Just in Time Support Instruction/Accelerated Learning

Active Learning/Student Engagement Techniques

All Mariah’s courses (Biology 160, Biology 100, and ENVS100) try to include active learning and activities for hands on learning.

Project Based Learning

This is focused on in Mariah’s ENVS100 course – it is completely projects based now, and had various small projects before W22 revision.

Industry Standardized Tests/Exams

I-BEST Programs

Other (Please describe.)

MARIAH'S answers are in BLUE

CHRISTY'S answers are in PURPLE

THERESA'S answers are in GREEN

PROGRAM QUALITY – STUDENT ACHIEVEMENT DATA:

Please use the student achievement data provided to discuss and review how successful students are within your classes. Please use the Overall Success Rates and Course Success Compare tabs in the About BBCC Tableau workbook to gather the data for the courses in your department. These workbooks can be found on the Institutional Research & Planning page in the Portal.

https://tableau.sbctc.edu/t/BBCC/views/AboutBBCC/OverallSuccessRates?iframeSizedToWindow=true&%3Aembed=y&%3AshowAppBanner=false&%3Adisplay_count=no&%3AshowVizHome=no&%3Aorigin=viz_share_link

2. Are there certain classes with student success rates below 75%? Within your courses, what achievement gaps do you observe within underrepresented groups taking your courses? Which of these gaps are you focusing your efforts on and what are your next steps? How does this student achievement data intersect with your assessment efforts?
 - a. **Biology 104** – This course was last taught in 2017-2018 and was designed to prepare students for Biology 211 which is no longer offered.
 - b. **Biology 100** – The three-year average is 72%. When looking at the Race/Ethnicity breakout, it is wildly all over the place. However, in 20-21 (most recent year) they are similar, especially for the perceived two largest groups (Hispanic and White), 70 and 72% respectively. The Age Groups of <20 and >25 are very close (73% and 72%), but the 20-24 group is over 10% lower success (61%). This course is no longer a pre-requisite to other courses and therefore is being re-designed to focus on created “educated citizens of science”. This means we are shifting the focus from a traditional biology course to one that is topics-based and focuses on the application of the traditional biology content to the students’ lives. I believe we should see an increase in the mid-age group due to this switch. Overall, not concerned about the current success rates of this class.
 - c. **Biology 160** – The 2012-2018 data averaged 47% success (using Biology 211 data), the 2018-2021 averaged 57% success (18-19 was BIOL&211). In Summer 2018, I attended ESCALA training and put that into action in 18-19. Additionally, we switched to a new course Biol&160 and text in Fall 2019. There was a drastic increase in overall success following the ESCALA training and similar success in 2019-2020. 2020-2021 saw a slight decline as this class went online with all the others due to COVID. I attribute the previous increase in success on my student relatedness fueled by ESCALA. The online environment did not allow for the same relationship building experiences. While the success slightly decreased (58% to 53%) while online, I was able to create a better course design. I now teach the class as a hybrid model. It allows for the time flexibility the students needed (they told me about this when I was building relatedness) as well as the in-class interactions necessary for discussing and clarifying content. I am now making great strides in this course, especially focused on course design for busy students without sacrificing course content and/or rigor. For Fall 2021 – success rate for my section of Biol&160 was an astonishing 79.2% success rate (19 of the 24 students earned 2.0 or higher). When looking at Race/Ethnicity breakout, again it was all over the place the last few years. White and Hispanic comparisons were as follows for the last 4 years – 17-18 was 53% and 42%, 18-19 was 77% and 38%, 19-20 was 59% and 57% and 20-21 was 54% and 56%. In 18-19 there was a big increase in overall course success, but it was mostly seen in the white population. However, the two groups were much more closely aligned the next two years, and most recently, the Hispanic population is now outperforming the white population. I look forward to seeing this years’ continued success. As of today, 1 student has withdrawn, 1 student is below a 2.0 and 8 are above 2.0 = 80% success rate as of now. Again, this is a remarkable increase considering historical data from the last 9 years did not rise above 60% success and I have not decreased the amount of learning

outcomes or the difficulty of the exams since the switch from Biology 211 to Biology 160 took place (Biology 160 was first offered Fall 2019).

- d. **Environmental Science 100** – The three-year average is 75.3%. There was a 10% increase in 2019-2020 when I switched to more hybrid modality offerings. The drop in success in 2020-2021 I attribute to the online modality for the course being the only option. The success rates have fluctuated from a low of 65% in 16-17 to a high of 83% in 19-20, but the nine-year average is 72.6%. Starting in Spring 2022, the course will be switched to an OER course that focuses on Projects Based Learning (PBL) methods. The switch is not to increase student success but is to increase student interest and ability to apply their knowledge to their own lives. We hope to have increased success as an added benefit. Throughout the last nine years, the Hispanic and White groups have remained close to one another, but in the last year they were only 4% different. We hope to close this even further with the changes in course design.
- e. **Geology 101** – The three-year average is an amazing 93.7%. Students seem to enjoy this course (and instructor). While this may seem high, the grades given are not all As. When looking at the last 10 times the course was offered (between Spring 17 and Spring 21), There were 74 As, 83 Bs, 23 Cs, 9 Ds or Fs, and only 3 withdrew. The success rates are highly correlated with the low withdraw rate, not with the grades given. Students are still earning a variety of levels of “pass” in the course based on their knowledge of the content.
- f. **Nutrition 101** – The three-year average is 81.7%. Students say a drop in success during 2020-2021 (COVID year) to 77%, which was the lowest in the last 7 years. The success rates for White and Hispanic are very close. Most recently a difference of 2% with Hispanic higher than White, and Multiracial higher than either of those.
- g. **Anatomy & Physiology I (BIOL& 241)**– The three-year average is 88%. While this is high, this is, for most students, the most difficult in terms of adjusting to the amount of course content. Another consideration is that every term, there is at least one student who is re-taking it with the hope of receiving a higher grade.
- h. **Anatomy & Physiology II (BIOL& 242)** – In terms of course content, this is the more difficult course, yet there is a three-year average of 94%! As with 241, there is always at least one student who is re-taking this course.
- i. **Microbiology (BIOL& 260)** – The three year average for this course is 86%. Starting Fall 2021, Biology 241 is a pre-requisite for this class.
- j. **Evolution & Ecology (BIOL&221)** – The three-year average success rate for this course is 73%. This is the first of three-quarters in the Majors Biology series, and not everyone who has signed up for it is prepared for the rigor of a majors biology course. On average, Hispanic students were more successful (86%) overall than white students (74%). No concerns about success rates in this course at this time.
- k. **Molecular & Cell Biology (BIOL&222)** – This course once included students taking BIOL&211, but has not since 2018-2019. The success rate average for the past three years is 91%. The average success rate for Hispanics was 95%, while for white students it was 87%. Because there are no longer pre-nursing students in this course, all of the students who are in the course have now already taken BIOL&221, and therefore are either well-prepared for BIOL&222, or have been filtered out of the majors series and are not taking the successive quarters.
- l. **Majors Organismal Physiology (BIOL&223)** - the three-year average success rate for this course is 86%. Again, the success rate is high because earlier students have dropped out before reaching this third quarter and no new students can sign up, so students have either been screened out or are already prepared to succeed. The Hispanic three-year average success rate for this course was 67%, and for White students it was 91%. The reason for this disparity is unclear, however, it may have something to do with low sample size (n<12). There were 2 Hispanic students (in different quarters) who took successive incompletes and have recently completed them, so that information is not yet reflected in this data set.
- m. **Introduction to Botany (BOT 130)** – The past three-year success rate for this introductory course is 75%. The success rate for Hispanic students during this time period averages 67%, while the success rate for White students averages 76%. Because this course was also recently

offered in the spring, some of the disparity between white and Hispanic students may be due to the heavy amount of field work that occurs in the spring, in which many Hispanic students are involved. Also, the amount of the new terminology that needs to be learned for this course can be challenging. This may present an additional challenge for those who are seeking to master more than one language already.

- n. **Field Botany (BOT 140)** – This face-to-face field trip course was not offered in 20/21 due to the low success rate as a result of moving this course online during the previous year due to COVID. The three-year average success rate for White students was 80% and did not decrease significantly at that time, while for Hispanic students it fell from 70% to 50%. This gap may be due to a distinct lack of access to technology and the knowledge of how to use it when they submitted their collections online and completed their botany field work on their own. This course has been discontinued until it can be fully in-person again, as online attempts to conduct it have been unsuccessful, especially for the historically under-represented groups.

3. Please describe what you are doing as a department to increase student success, especially within courses that exhibit low success rates or that indicate achievement gaps exist for some student groups? How are you closing the loop to see if your efforts have made improvement or not? What further steps do you plan to pursue?

As mentioned above in the Success Data analysis, we are making the following changes, and will re-assess where we are in 3 years. Currently there are no alarming areas (besides Biology 160 which is already seeing *drastic* increases in 21-22 year):

- a. Biology 100 – switching to a topics-based approach to traditional biology content. In addition, the new text for this approach will allow us to utilize interactive reading assignments. These assignments force students to interact with the material until they reach 100% completion and comprehension on the assignment. We are also allowing students to extend the due dates on assignments by requesting permission in advance, in the hopes that this will allow more flexibility and consequent success for historically under-represented groups. Also, in Mrs. Whitney's courses, adding in more structure to course design – focusing in on addition of times to each assignment title to help with students' time management.
- b. Biology 160 – switching to only Hybrid course offerings to get the best of both situations. Flexibility for watching lectures and in-person discussions for class and lab. Also, in Mrs. Whitney's courses, adding in more structure to course design – focusing in on addition of times to each assignment title to help with students' time management and scheduling out the week for students so that they can better manage their time.
- c. Environmental Science 100 – switching to OER and PBL to increase relevancy and interest.
- d. Biology 241,242 and 260 – switching from strictly online (all of 2020 and most of 21) to a hybrid form has proved helpful, not only in terms of student success but for student access. Course material has been changed and updated for Biology 241 and 242 so students have access to relevant and useful virtual anatomical dissections, as well as updated laboratory exercises. In Microbiology (160), the plan is to switch the text to an OER for 2023, and retaining the hybrid course model, while offering face-to-face laboratory activities.
- e. For the Majors Biology series, I have been attending workshops conducted by McGraw-Hill and Rob Brooker (the author of the textbook used for this course) on utilizing more Active Learning techniques. As we return to more face-to-face opportunities, I will incorporate more of this group learning into our time spent together. I think this will be especially successful with the new hybrid-model we are currently developing, where students are able to watch lectures over and over and at the times best suited for them, while our on-campus days can be utilized for active learning and hands-on group activities. I did not find Break-out rooms on Zoom to be as successful as I think on campus group time will be. In addition, I will be assigning more interactive reading assignments through Smartbook in McGraw-Hill, which forces students to interact with the text until they have reached 100% completion and comprehension.

- f. For Botany 130 the success rates are satisfactory. For Botany 140, having the class in-person and on campus again should improve success rates dramatically, as it is a hands-on field experiential course, and little technological expertise or access is required.
4. Are there additional insights you have observed when looking at student grade data within courses? Please highlight one or more of these observations.
- Clearly, we need to ask Brian what he is doing to have such great success rates in his Geology course. I know he is connecting with students (low withdraw) as well as making sure they are successful (high success rates over 2.0), but gaining some insight into the detail might help us all improve our success rates.
 - In Mrs. Whitney's courses the achievement gap is small – she attributes that to her ESCALA training as well as being more intentional about course design. Historically, her Hispanic students were the ones that had lower success rates and self-reported (student surveys) that it was due to personal situations outside of the classroom taking up their time and energy. She more intentionally designed the course (labeling time needed on assignments) and made most lectures asynchronous. This allowed for more flexibility in student schedules and a greater ability for success in the course.
 - I was surprised that there was little to no disparity between white and Hispanic populations among the students in the Majors Biology series. I think this is because the students who sign up for this year-long course are already focused and directed in their goals and study habits and are committed and prepared to succeed.
 - I was delighted that there seems to be little to no disparity for the Botany 130 (Introductory Botany) course among the various student populations. I was reinforced in my decision not to offer Botany 140 online again, as this success rate was too disparate for students of differing population groups. Botany 140 definitely needs to be an all on-campus course.
5. Please review your department's 7-Year Plan and Course Crosswalk for accuracy and completion. Does the course crosswalk accurately reflect the courses offered by your department? Are all courses offered being assessed once within a seven year span and are all program outcomes included within your department's courses assessed at least once during the plan. Update your plan to include seven years moving forward from this year. Please use the student achievement data provided to discuss and review how successful students are within your classes. Are there certain classes with student success rates below 70%? Using the disaggregated data available, are there certain student groups that are less successful than others? Are there additional insights observed when looking at student grade data within courses?
- 7-Year Plan is up to date and current. No additional insights beyond those listed above.

LAB FEES:

6. Does your department maintain a lab fee account?
- If yes, please answer the remaining questions regarding lab budgets.
 - ~~If no, please skip the remaining questions regarding lab budgets.~~
7. Is the lab account balance adequate to cover consumable expenses?
- If no, have fees been reviewed? Why/why not? What is needed to ensure consumables are covered. Discuss. (Should this discussion be used to request a fee increase?)
 - ~~If yes, do fees need to be reduced? Discuss.~~
 - Biology 100 is using online labs – no fees collected for majority of courses.
 - Biology 160 is doing on campus labs – \$37.80 collected per student, \$10 to STEM Center, \$27.80 to lab fees. Student cost is approximately \$9-10 for consumables purchased each quarter (winter quarter is higher with the purchase of pond organisms) if the class is FULL. If the class is NOT full, the cost per student increases due to particular items that must be purchased regardless of the number of students. In W22 the cost for 9 students was \$13.28 per student.
 - Biology 241 and 242 are doing on-campus labs - \$37.80 collected per student.

- Biology 221 will decrease the amount spent on specimens this upcoming year and will have adequate lab fees to cover the cost of the specimens. Specimens will be ordered from companies that use formaldehyde-free holding solutions (such as Carolina's Perfect Solution®) so no hazardous waste fees will be incurred. Lab fees should be increased by an additional \$5.00 per student to cover the cost of microscope purchases and maintenance.
 - Biology 222 lab fees may need to be increased to cover the cost of using fume hoods, Lab Quests, etc. This will be carefully researched next year (Winter 2023) as the class is being conducted and the exact use of chemicals and lab equipment can be determined.
 - Biology 223 lab fees are more than adequate at this time (\$37.80) as most of the course has been reliant upon the use on online lab programs.
 - Botany 130 lab fees are adequately covering the cost of lab supplies as well as microscope use and do not need to be increased.
8. Is the lab account balance adequate for purchasing needed equipment/technology updates?
- a. If no, do fees need to be increased to help support these? What is needed and what will it cost? How much do the fees need to increase? Discuss. (Should this discussion be used to request a fee increase?)
 - ~~b. If yes, what will be purchased and when?~~
- Biology 160 – \$27.80 collected per student into lab account. Student cost is \$9-10 in full classes. Fee going toward future needs is approximately \$17.80, do not need to increase or decrease fees.
 - A portion of this goes to the cleaning and maintenance of the microscopes (~\$500 per year per class set), replacing broken glassware, and various stockroom supplies.
 - Current list of future needs: class set of microscopes (~\$1200 each – need 24)
 - Replacements for the following as they break:
 - LabQuest 3 computers (\$389 each – need 12) and pH probes (\$99 each – need 12),
 - micropipettes (1000uL) (\$75-\$200 – need 12),
 - prepared slide broken/poor quality (vary greatly in price),
 - stir + hot plates (Corning - \$500), balances (OHAUS - \$500-\$1000),
 - Various lost supplies such as: lost potato corer (\$35)
 - The goal for Biology 241, 241 and 260 is the development of itemized prep sheets to accurately assess lab fees for the next two years.
 - The goal of BIOL&221, 222, and 223 is to update all existing prep sheets and prepare itemized costs in Excel spreadsheets during this summer and the upcoming year.
 - The lab account balance for Botany 130 is adequate for purchasing/updating microscopes.

TECHNOLOGY:

9. Does your department have the technology available that is needed within courses to prepare students for transfer? Discuss.
- I have all of the technology needed for Biology 100, Biology 160, and ENVS 100. For BIOL&222, I feel the technology is adequate and appropriate. I am working on updating and improving BIOL&223, and I will know more as the quarter progresses.
10. Review your current equipment/technology inventory. Are there equipment/technology purchases that you think that you may need within the next three years. Please discuss equipment/technology where replacement/update is needed or where technology/equipment is obsolete. Have you planned for these purchases within your lab fee account, if you have one? How do you plan to budget for these purchases?

Discussed above for Biology 160. There are no major purchases that will be required at that time, other than those that may be determined as we continue to improve and update BIOL&223. We are planning ahead to further updates that may occur beyond the next 2-3 years.

INTERNAL PARTNERSHIPS:

11. Provide information about how your department is involved in building and/or maintaining specific internal partnerships/relationships. Briefly describe the partnerships you have been working to develop and what the outcome(s) of those partnerships has been. What are you considering or planning to do in the future?

Currently working to build a closer partnership/relationship among the Biologists. Extending this to include those teaching Chem 121 and Chem 131 can make the Allied Health pathway even smoother.

There has been initial discussion of partnerships between the English department and ENVSCI/Biology departments in courses that involve reading & writing science papers. There has also been initial discussion between David Holliday and Christy Welch concerning a biology/psychology connection.

2021-2022 Transfer Program Audit Report SPRING

PROGRAM QUALITY – ASSESSMENT:

We are required by our accrediting body, the Northwest Commission on Colleges and Universities (NWCCU), to document our assessment of student learning activities. Specifically, we are expected to assess student learning in our programs, to design and implement changes in our teaching intended to improve student learning, and to use further assessment of student learning to measure the impact of those changes on student learning.

Please review the assessment work you did over each of the past three years and then respond to these questions.

1. Based on your prior assessments, what were the issues (problems) that you were trying to address in an effort to improve student learning?

We, as a department, were trying to address the issue of decreased student success in various areas, possibly due to a lack of reading comprehension. For example, in one class we noticed that student success on a particular topic (Hardy-Weinberg) was 61%. ENV5 and Biol 100 – students seemed to enjoy the topics, but the tests were challenging, both courses are being completely redesigned, we will re-assess in next audit and/or next assessment of ENV5 and BIOL. The topics assessed no longer apply due to curriculum changes. As noted in above sections, the changes are to improve student success and interest in these intro/survey courses. The assessment for Biol 160 – we looked at various parameters of the course to determine possible causes of low student success. See changes below.

2. What changes did you make in your instruction and/or program to address the problems identified in the question above?

In several of our courses (non-majors Biology, Anatomy, Physiology, the majors Biology series) we moved to a new program entitled “Connect” by McGraw-Hill. This program provides interactive textbooks. These interactive textbooks (known as “Smart Book” or “Adaptive Reading”) force students to continue to interact with the material until they have demonstrated 100% completion and comprehension. In Biol 100 and Envs 100 – we have been changing to more of a topics based for Biology and Projects based for ENV5. We have seen initial success, we will assess this more in the future. Biology 160 - we now advise students to NOT take Chem121 and Biol 160 unless absolutely necessary, most of our students aren't on the time crunch to get all pre-requisites done in 1 year, so this allows them to be more successful. Mrs. Whitney gives a survey on day one of each quarter to identify and talk to those enrolled in both.

3. After implementing your changes, what impact did the changes have on student learning? How do you know/What did the data tell you?

Assessments related to student reading/comprehension and the McGraw-Hill Connect program were successful. Student performance improved with engagement in the repetitive reading and homework assignments associated with this new adaptive textbook approach. For example, the student scores for the Hardy-Weinberg example previously cited increased from 61% to 81%. As a result, we are furthering the expansion of this interactive reading program to more of our courses.

Students are more informed and better advised of their options for Chem121 and Biol 160 concurrent enrollment. I know this due to speaking to each of them individually.

4. What are the implications for your academic program or department? (What are your next steps now?/What will you do to close the loop?)

We are going to use the McGraw-Hill connect resources in our other courses as well. Mariah & Laurie already implemented its use in BIOL&100 this past spring, and Christy will begin

implementing it in other BIOL&100 sections and BIOL&160 this fall (as well as continued use in BIOL&221,222 and 223). Furthermore, we have determined that assessing a broader goal (like overall student reading and success) may be more meaningful than assessing detailed specific items (like the Hardy-Weinberg principle). We will be more focused on choosing assessment goals that will allow us to examine broader topics and gather increased amounts of data in the future. We presented a handout on Non-lab Sciences at Winter 2023 in-service to share info with all advisors about the changes in our courses, to allow for better campus advising. We will need to do assessments looking at course success before and after the 2022-2023 year when these major changes occurred. This will most likely be done when this audit is repeated to gain more years of data.

PROGRAM QUALITY – OUTCOMES:

5. Did your department invest in technology or equipment used to improve content delivery or student performance? If so, please describe the purchase and the impact it has had on content and/or student performance.

Biology 100 used “Why Biology?” from Connect through McGraw-Hill. Other courses (Anatomy & Physiology and the Biology Majors series also moved to the use of this resource. This improved student performance and study skills as the reading assignments forced the students into repetitive study. The concepts-based approach of this book also made the course more applicable to everyday life. Student performance seemed similar to previous quarters (prior to Spring 2022) but this quarter was the first time this approach was implemented. More data will be collected for each of the three quarters this upcoming year, as all BIOL&100 instructors will utilize the same adaptive textbook and its resources.

6. Please provide examples of any innovative projects, initiatives, or state-of-the-art equipment undertaken in the last year. Please describe and include links to any social media posts and/or press/media coverage, if applicable.

The biology labs and stockroom were remodeled during the summer of 2021. The labs now feature new cabinets with improved microscope storage space. The new arrangement of tables/chairs in “pod” formation facilitates better student-to-student interaction and cooperative work on group assignments. The new stockroom now facilitates easier prep, meets current safety standards, and is more efficiently organized. The new fume hood in the stock room also enhances lab preparation and better access for the biology instructors during lab.

7. What was the most successful or noteworthy development with respect to program quality and/or program improvement this year?

Biology 160 is seeing some increased success rates, and definite increased scores for those doing well. I attribute this to the hybrid format, which is a truly “flipped” class room in which I am not doing real lectures in class. A nursing instructor even contacted me to let me know that students said the new format of BIOL&160 was very helpful in training them to come to class prepared once they were in nursing school.

For Biology majors and Botany, the most significant success was in getting all lectures recorded and online. This will lend itself to also implementing more of a “flipped” classroom for these courses next year, when there will also be an on-campus discussion/lecture period as well for questions and deeper discussion. This past year, all labs were held on campus, but all of the lecture occurred online (with very little discussion). Next year this will be implemented to more closely resemble BIOL&160.

8. What were the most significant challenges (e.g. funding, enrollment, performance, staff retention or turnover, equity, etc.) encountered in the last year? How could BBCC assist in addressing these challenges?

With decreased enrollment, we have had a challenge in filling the Majors Biology course. We are going to design a poster/handout that delineates which students should be in Majors Biology their first year and which should be in BIOL&160 for Allied Health. We would like to clearly communicate with students and advisors that students should be taking CHEM&121 or CHEM&161 concurrent with BIOL&221 (or have had recent high school chemistry). We would like to encourage advisors that students interested in pre-professional careers should take BIOL&221,222 and 223 starting in the fall of the first year, and CHEM& 161, 162 and 163 should be taken the second year.

Due to the challenges of Covid-19, the math/science faculty was struggling with low morale. We found that implementing on-campus gatherings (such as the “Monday Mingles” and our division meetings) greatly improved camaraderie and attitudes. Big Bend could contribute by supplying the refreshments for the Monday Mingles (the math/science faculty have been personally purchasing the food/beverages).

BBC could also help by listening to faculty on how their course could be best taught (for example, BIOL&160 has been very successful with the flipped, hybrid model, but perhaps other courses need such as Majors courses need to be more on campus).

Mariah was extremely dissatisfied and frustrated with the handling of her professional development request in Winter2022. This same treatment of other faculty may lead to high turnover rates.

FACULTY/STAFF PROFESSIONAL DEVELOPMENT:

9. Please provide brief descriptions and dates of professional development in which you and members of your department have participated in the last year.

Robin Arriaga has a list of Mariah’s extensive professional development accomplishments from the past two years. They were in a variety of topics from technology, to content, to curriculum design. HHMI seminars were evolutionary-based and I learned about all their resources, which was very cool.

10. What was the most successful or noteworthy development with respect to faculty/staff retention and professional development this year?

No one left despite the challenges (mess) of the professional development request.

Mariah earned her Senior Tenured Faculty. Theresa received her tenure. Christy finished her fourth year.

11. Select the methods employed to provide professional development opportunities for faculty/staff. Provide a brief description of each selection.

New Instructor Conference/Boot Camp

Deans Academy

Return-to-Industry

Faculty Peer Mentoring – Mariah mentored Jim Linn throughout the past year. Christy was mentor to Barbara Bush.

Professional Development Days

Distance Learning Training

Technology and E-Learning Tools

Data and Assessment Workshops

Subject Matter Conferences- Mariah attended numerous through HHMI on content and curriculum development.

Other -Colloquia: Mariah taught one on improved assessment techniques.

K-12 /COMMUNITY PARTNERSHIPS:

12. Does your department provide opportunity for College in the High School or CTE Dual Credit with area high schools?

If yes, list the classes and the schools. Ephrata High School. They teach BIOL 170 and occasionally BIOL&100.

If yes, could this be expanded? How? Not at this time, since MLHS does AP and Running Start. Warden and Othello high schools are very small, and also do Running Start.

13. Provide information about how your department is involved in building and/or maintaining specific external partnerships/relationships with K-12 schools and the communities in our service district. What K-12 partners are you working with and what communities are you working in? What are you considering or planning to do in the future?

None at this time, we might consider this later, as we are currently focusing our efforts on transfer pathways.

14. Please describe any outreach events you have participated in as a department. What plans do you have in the future to participate in outreach events with our service district communities?

None at this time, we might consider this later, as we are currently focusing our efforts on transfer pathways.

NOTE: We need to establish stronger quarterly contact with CiHS. And the students should be using CANVAS, just as BCC students do, and NOT Google classroom. This is not an AP course, but rather a college course that is taught in a high school classroom. It should be using the same materials and resources that the college is.

PROGRAM AUDIT SUMMARY REFLECTION/GOALS:

15. What are some key things you have learned about your program/department as you completed the program audit?

Our classes do transfer as we thought (for the most part). We believe we have appropriate success rates in most all of our classes, though we still believe in continuous improvement.

16. What are the primary actions you have taken over the past three years to improve student outcomes in your program/department? Why were you focusing on these things? How do you know you are making progress?

Curriculum changes – we have done more PD and are working to incorporate more best practices and culturally responsive techniques. I know we are making progress as I rarely assign 0s in my intro courses anymore – additionally you can see success rates above divided out by class.

17. What goals do you want to accomplish over the next three years to improve your program/department?

1. Professional Development – stay up to date in our fields by attending conferences (NWBIO, HAPS) and NSTA memberships; also meeting with our Associate Faculty to keep them in the loop.
2. STEM Outreach – Work to develop K-12 partnerships by promoting our courses at local HS

CAREER GUIDANCE: Deleted?

1. What was the most successful or noteworthy development with respect to academic guidance and career counseling this year?

The biology department met with the WSU transfer people and learned more about the requirements of transferring to WSU.

The CCRI (comm college research initiative grant) grant funded by the UW, in which Mariah is connecting BBCC's geology program with CWU geology program. This begin in early 2022 and will be continuing over the next two years.