



# TILLAMOOK BAY COMMUNITY COLLEGE

Three-Year Instructional Program Review Template  
Tentative Due Date: May 30 of the Academic Year Assigned

Program Name: Nature and Outdoors

Degrees and Certificates offered within Program:

- AS Forestry
- AS Natural Resources
- AS Animal Science
- AS Agricultural Sciences

### Statement of Collaboration


The program faculty listed below collaborated in an open and forthright dialogue to prepare this Program Review. Statements included herein accurately reflect the conclusions and opinions of the program faculty.

Participants in the review:

Authorization:

After the document is complete, it must be signed by the Department Faculty and Chief Academic Officer prior to submission to the President.

  
\_\_\_\_\_  
Signatures of Department Faculty

  
\_\_\_\_\_  
Signature of Vice President of Instruction

  
\_\_\_\_\_  
Date of Submission

# 1.0 MISSION AND GOALS

*1.1 Briefly describe the relationship of your program to the college's Mission, Vision, and Core Themes.*

## *College Mission & Vision*

### College Mission

The College Mission is to create bridges to opportunity by providing quality education that serves the needs of our diverse community. The Nature and Outdoor program serves this mission because it has four completely transferrable degrees that support student success to complete a bachelor's degree in their desired field at Oregon State University, without taking excess or unneeded credits. Additionally, these degrees serve local Tillamook industry needs in Agriculture, Forestry, and Natural Resources. The program strives to provide students with summer job opportunities with local state and federal agencies.

### College Vision

The College Vision is to be a local leader in educational excellence and innovation, community advancement and economic success. The Nature and Outdoors program aligns with the College Vision by annually assessing the degrees and making course adjustments that support student success. The courses are primarily taught by adjuncts who are local experts in their respective fields and active members of the community. Most subject specific classes (ANS, FOR, SOIL, etc.) have a lab component where students apply content from lectures in hands-on activities. Many of these labs utilize community resources and have incorporated more community partners as the program continues to develop and evolve. This also aligns with the College Vision which highlights the college as a local leader in community advancement.

## *Core Themes*

**Core Theme #1: Educational Excellence:** Students are provided with the opportunity to succeed in an equitable, inclusive and supportive environment that enhances individual and professional growth, through academic, personal and professional development.

The Nature and Outdoors Program supports educational excellence in four (4) specific ways:

1. Direct alignment with Oregon State University Course Learning Outcomes, which means equivalent course transfer.

2. **Instruction provided by local experts** who have worked within the fields of forestry, natural resources, agricultural science, or animal science for many years.
3. **Advising** to make sure that students are taking the right classes and are on track to graduate and transfer to Oregon State University.
4. **Transfer support** that removes barriers in the transfer process and makes sure that all students have all necessary classes, as well as auxiliary support for a successful transfer experience.

**Core Theme #2: Economic Success:** The College contributes to the economic growth and development of students, community residents, and the entire region, while also practicing good stewardship of college resources.

The Nature and Outdoors Program(s) supports Economic Success in two (2) specific ways:

1. **Local jobs and internships in the field.** To date, 6 students from the Forestry/Natural Resources degrees have worked with the Forest Service, based in Hebo, OR.
2. **Designing degrees that support the local economy.** Agricultural Sciences, Forestry, Natural Resources, and Animal Sciences are all fields that support Tillamook County's local economy.

**Core Theme #3: Leadership, Partnership and Community Engagement:** The college and its students, staff and faculty serve as educational and community leaders through professional development, skill building, or partnership with local business and school districts, post-secondary institutions, the TBCC Foundation, and governmental and social services.

The Nature and Outdoors Program supports Leadership, Partnership, and Community Engagement in three (3) specific ways:

1. **Dual Credit** courses are offered in a number of subject specific courses including AG, ANS, HORT, and FOR. These courses provide high school students with the opportunity to learn more about these specific subject areas and expose them to the degree options at TBCC.
2. **Labs** throughout the community are possible through partnership local businesses, government agencies, and individuals. Forestry and Natural Resource labs have occurred at Anderson Hill, Kilchis Point, local ODF land, and local small woodland owners. Agriculture and Animal Science labs have occurred at a variety of dairies and farms throughout the county such as Nehalem River Ranch, Martin's Dairy, Oldenkamp Dairy, Larson Longhorn Ranch, among others. While the labs provide the students with valuable application experience, they also serve as a way to inform community members of the course offerings and content that are offered by the college.
3. **Partnership with Oregon State University Extension Service** supports students in the Nature and Outdoors program through course alignment with OSU classes, transfer support, and access to resources, such as the shared van that supports transportation to labs.

## Program Description

AS in Forestry	AS in Natural Resources	AS in Agricultural Sciences	AS in Animal Sciences
<p>This degree is for students who are interested in a career in forestry as a professional forester, silviculturist, GIS specialist, or fire ecologist. Upon completion of this degree, students should have completed all required pre-professional coursework to apply to Oregon State University's professional program in the school of Forestry.</p>	<p>This degree is for students who are interested in careers that include (but are not limited to) occupations such as a riparian/watershed specialist, recreation manager, forest/wildlife ecologist, or a wildland law enforcement officer. Upon completion of this degree, students should have completed all necessary prerequisite requirements to transfer to Oregon State University to complete a Bachelor's degree in Natural Resources.</p>	<p>This degree is for students who are interested in a career as an agricultural consultant, agricultural educator, agronomist, or agriculture production manager. Upon completion of this degree, students should have completed all necessary prerequisite requirements to transfer to Oregon State University to complete a Bachelor's degree in Agricultural Sciences.</p>	<p>This degree is for students who are interested in pursuing a career in production in meat, eggs or wool, becoming a veterinarian, or working in nutrition. This degree aligns with the courses in the Animal Science degree at Oregon State University (OSU). Students who want to directly transfer to OSU after completing this degree, are highly encouraged to work directly with an OSU academic advisor.</p>
<ul style="list-style-type: none"> <li>• Complete all courses with a minimum grade of "C" or "Pass" or better. Students must have a cumulative GPA of 2.0 at the time the AS is awarded.</li> <li>• Courses may not be double counted within General Education (e.g. Oral Communication and Arts and Letters)</li> <li>• General Education courses must include;             <ul style="list-style-type: none"> <li>✓ Writing (8CR): WR 121 and either WR 122 or WR 227</li> <li>✓ Oral Communication (3CR+): COMM 111 or COMM 112</li> <li>✓ Math (4CR+): MTH 105 or higher</li> <li>✓ Health/PE: HE250 + 1 CR in PE or HE/PE295 (max 3 CR): HE295, HE 242, HE 250, HE 254, PE 295, PE 142, PE 182</li> <li>✓ Information Literacy: embedded within WR courses</li> <li>✓ Arts &amp; Letters/Humanities: two courses (6 credits) for AS degrees (e.g. ART, COMM, ENG, MUS, REL, PHL or Foreign Language)</li> <li>✓ Social Science: two courses (6 credits) for AS degrees (e.g. PSY, SOC, PS, HST, or ECON)</li> <li>✓ Science/Math/Computer Science: 7 credits for AS degrees with at least one lab science (e.g. MTH, CS, BI, G, GS, GEO, CHEM, PHY).</li> </ul> </li> <li>• A Maximum of 12 credits can be Career Technical Education courses</li> <li>• A Maximum of 9 credits can be from courses labeled 199/299</li> <li>• A Maximum of 24 credits can be ESOL</li> <li>• A Maximum of 24 credits can be "P" grades</li> <li>• A Maximum of 21 credits can be from Credit for Prior Learning (CPL)</li> <li>• Electives must be used to bring the program of study up to a minimum of 90 credits, and a maximum of 108</li> <li>• 30 credits are required to meet residency at TBCC, 24 of which must apply to the degree for which the student is being awarded</li> </ul>			

## Program Learning Outcomes

AS in Forestry	AS in Natural Resources	AS in Agricultural Sciences	AS in Animal Sciences
<ol style="list-style-type: none"> <li>1. Demonstrate knowledge of forest ecology and silviculture principles to understand how forests and forested watersheds respond to natural disturbances or management activities.</li> <li>2. Develop skills in geospatial analysis, basic surveying, mapping, and GIS.</li> <li>3. Demonstrate the ability to measure and inventory forest vegetation with precision and accuracy.</li> <li>4. Demonstrate an understanding of the social and political context of forestry and be able to describe current policies, laws, and regulations governing the management of forestlands.</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe ecological processes, including human impacts that influence ecosystem change, natural succession, and the future sustainability of natural resources.</li> <li>2. Characterize natural resources and be able to quantify at least one of these resources.</li> <li>3. Envision desired future conditions in an area to achieve a set of natural resource-related objectives.</li> <li>4. Work effectively with, and within, interdisciplinary and diverse groups to resolve management problems and achieve management objectives.</li> </ol>	<ol style="list-style-type: none"> <li>1. Understand major agricultural themes and issues, domestically and worldwide.</li> <li>2. Analyze the effectiveness of agricultural practices, sustainability issues, and global agricultural movements and trends.</li> <li>3. Understand the broad effect of social, economic, and environmental forces on the agricultural industry.</li> <li>4. Provide leadership and communication skills in agricultural communities throughout the U.S. and beyond.</li> </ol>	<ol style="list-style-type: none"> <li>1. Integrate and apply essential core information about production methods of two different species.</li> <li>2. Understand the behavior of traditional animal species and the ethical implications of production methods for these species.</li> <li>3. Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions</li> <li>4. Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner</li> <li>5. Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.</li> </ol>

## 2.0 PROGRAM DATA AND TRENDS ANALYSIS

2.1 For each data point listed below, summarize the trend. (Attach three year longitudinal data to appendix.)

The analysis for programs between 2018-2020 showed the majority of the trends varied (meaning they increased and then decreased in 2020) or decreased because of COVID-19, which impacted the Spring 2020 term and overall trends for 2020.

For the degrees with an increased trend, this is due to the fact that these are new degrees and started in 2019.

Program Name: Nature and Outdoors

Data Point	Table	Trend (2018-2020)	Highest Year
Enrollment	2.1.a	<b>Trend: Varied</b> 2018: 394 2019: 425 2020: 187	2019  Fewer sections of ESR 171 were offered from 2019 to 2020. ESR 171 is not in any of the degree maps for Nature and Outdoors Program and we may look to alter to more courses such as FOR 111.
Number Program Majors	2.1.b	AGNR: Decreased (discontinued the degree) ASAG: Increased ASF: Increased ASNR: Increased	AGNR: 2018 ASAG: 2020 ASF: 2020 ASNR: 2020
Total FTE	2.1.c	<b>Trend: Varied</b> 2018: 27.4 2019: 29.7 2020: 16.8	2019
Number Sections Offered	2.1.d	<b>Trend: Varied</b> 2018: 24 2019: 28 2020: 14	2019  Spring of 2020 highly impacted overall sections offered; all content specific and dual credit classes were canceled due to COVID-19.
FTEF	2.1.e	<b>Trend: Varied</b> 2018: 0.57 2019: 0.62 2020: 0.35	2019

Fill Rate	2.1.f	<b>Trend: Decreased</b> 2018: 33.9% 2019: 29.4% 2020: 17.9%	2018  Spring of 2020 highly impacted overall fill rate, all content specific and dual credit classes were canceled due to COVID-19.
% Students Persisting from Fall to Fall	2.1.h	AGNR Retention rate: 53% Other majors retention rate: 41%	
Average Successful Completion Rate	2.1.i	8 students have completed the AGNR degree since 2015, sample size is too small to calculate a rate.	
Course passing rate		Trend: By sex: Overall increase in passing rates for both men and women.  By race/ethnicity: Passing rates for white students have increased, while passing rates for Latinx students are varied.	Women pass at higher rates compared to men (~6% more)  Some suggestion that white students pass at higher rates than Latinx students, but number of Latinx students is small. While the discrepancy should be noted, a larger sample size will provide more of an opportunity to draw conclusions about passing rates.

## 2.2 Program Peer Comparison

*How does your program compare with peers?* See analysis section. Generally, TBCC enrollment numbers are slightly lower than other schools.

FTE Data were pulled from HECC and all degree level data used in the following table were pulled from Quality Info. Data were available in the "Schools and Training Providers" section for Forestry, Natural Resources, Ag, and Animal Science. Most recent available data is from 2016.

For FTE reference, Tillamook Bay Community College 2020 FTE was 827.

Program Name: Nature and Outdoors

Content Area	Type of Degree	School (2020 FTE)	Annual Number Degrees Awarded	Annual Number Certificates Awarded	Type of Degree	Certificate options
Agriculture	Agricultural Business and Mgmt	BMCC (1,561 FTE)	4	0	AAS	
	Agricultural Business and Mgmt	Chemeketa (9,832 FTE)	2	0	Non-credit	
	Agricultural Business and Mgmt	LBCC (6,437 FTE)	4	0	AS	
	Agricultural Business and Mgmt	TVCC (1,779 FTE)	2	3	AS and AAS	Ag Business Tech 1 year
	Agricultural Production Operations	BMCC (1,561 FTE)	6	5	AAS	Vet Certificate
	Agricultural Science	COCC (5,534 FTE)			AS	
	Agriculture, General	Klamath (1,797 FTE)	1	0	AAS	Ag and Natural Resources
	Agriculture	LBCC (6,437 FTE)	1	0	AS	
	Agriculture	TVCC (1,779 FTE)	0	0	AS	
	Applied Horticulture	Chemeketa (9,832 FTE)	6	0	AAS	
	Horticulture	Clackamas (7,506 FTE)	0	10	AS and AAS	1 year certificate
	Crop Production	BMCC (1,561 FTE)	12	14	AAS	Pest Management CPCC
	Agronomy and Crop Science	TVCC (1,779 FTE)	1	0	AS and AAS	Crop Science Tech CPC
	Farm/Farm and Ranch Mgmt	TVCC (1,779 FTE)	0	4	AAS	Ranch Animal Technician CPC and Range and Forest Technician, CPC
	Range Science and Mgmt	TVCC (1,779 FTE)	0	36	AS	



Animal Science	Animal Sciences	LBCC (6,437 FTE)	6	0	AS	
	Animal/Livestock Husbandry Production	BMCC (1,561 FTE)	13	14	AAS	Beef Production CPCC
	Animal Science	TVCC (1,779 FTE)	2	0	AS	
Natural Resources	Environmental Science	LBCC (6,437 FTE)	0	0	AS	
	Environmental Science	PCC (27,040 FTE)			AS	
	Environmental Science	Rogue CC (3,619 FTE)			AAOT	
	Fire Science	BMCC (1,561 FTE)	0	0	AAS	EMT Cert
	Fire Science	Chemeketa (9,832 FTE)	26	0	AAS	EMT Cert
	Fire Science	Clackamas (7,506 FTE)	0	12		1 Year Cert
	Fire Science	Clatsop CC (784 FTE)	4	0	AAS	
	Fire Science	COCC (5,534 FTE)	10	0	AAS	
	Emergency Response Operations	Klamath (1,797 FTE)			AAS	Wildland Firefighter 1 year cert
	Fire Science	PCC (27,040 FTE)	18	9	AAS	1 Year CPC
	Fire Science	Rogue CC (3,619 FTE)	19	9	AAS	CPC Fire Fighter
	Fire Science	SWOCC (1,976 FTE)	5	6	AAS	Fire Science Levels 1, 2, 3, 4 CPCC
	Fire Science	TVCC (1,779 FTE)	5	2	AAS	Wildland Fire Management 1 Year and Wildland Fire Tech CPC
	Fire Science	Umpqua (3,118 FTE)	1	0	AAS	
	Fishing and Fisheries Sciences and Mgmt	Mt. Hood (7,164 FTE)	15	0	AAS	
	Wildlife, Fish, and Wildlands Science and Mgmt	TVCC (1,779 FTE)	3	0	AS and AAS	
	Geography	PCC (27,040 FTE)			AS	1 year GIS CPC
	GIS	COCC (5,534 FTE)			AAS	1 year cert
	GIS Technology	Clackamas (7,506 FTE)	0	1		1 Year cert
	Commercial UAS	Lane (7,723 FTE)	1	13	AAS	1 year GIS cert
	Surveying and Geomatics	Umpqua (3,118 FTE)			AS	1 year GIS cert

Natural Resources	Natural Resources	COCC (5,534 FTE)			AS	
	Natural Resources	SWOCC (1,976 FTE)	0	0	AS	
	Natural Resources	TVCC (1,779 FTE)	9	0	AS and AAS	Env Sci Tech 1 Year Cert
	Natural Resources	Umpqua (3,118 FTE)			AS	
	Natural Resources Technology - Forestry or Wildlife Resources focus	Mt. Hood (7,164 FTE)	8	5	AAS	NR Tech Cert 1 year
	Outdoor Leadership	COCC (5,534 FTE)			AS	
	Water and Environmental Technology	Clackamas (7,506 FTE)			AAS	
Forestry	Forest Engineering	Umpqua (3,118 FTE)			AS	
	Forest Engineering	SWOCC (1,976 FTE)			AS	
	Forest Mgmt	Umpqua (3,118 FTE)			AS	
	Forest Mgmt	COCC (5,534 FTE)			AS	
	Forest Mgmt	SWOCC (1,976 FTE)	1	6	AS	1 Year certificate
	Forest Operations	Umpqua (3,118 FTE)			AS	
	Forest Renewable Materials	SWOCC (1,976 FTE)			AS	
	Forest Resource Technology	COCC (5,534 FTE)	8	14	AAS	1 Year certificate
	Forest Restoration and Fire	Umpqua (3,118 FTE)			AS	

### Analysis:

#### Agriculture

Across Oregon CCs, 16 different degrees related to Agriculture were offered. In total, there were almost the same number of Associate of Applied Science degrees (9) compared to Associate of Science degrees (8), sometimes both were offered for the same program (i.e. Horticulture at Clackamas or Agricultural Business Management at Treasure Valley). Finally, 43% of the degrees had a certificate option. There was not a clear trend between more degrees or certificates awarded across all the degrees. Depending on the degree, sometimes more certificates were awarded (i.e. Range Science and Management at Treasure Valley CC) where as other times more degrees were awarded (all but one of the Agricultural Business and Management Programs).

The two most prevalent agricultural degrees offered across Oregon CCs were Agricultural Science (5) and Agricultural and Business Management (4). While the number of degrees awarded were slightly higher than the numbers of students graduating from the TBCC Agricultural Science program, they are not substantially higher.

Finally, 2016 data reflected three schools had crop production degrees who have subsequently stopped offering those degrees. Only two crop production degrees remains, 2016 data for BMCC show higher numbers, and low enrollment for TVCC.

### Animal Science

Three other Oregon CCs offer an Animal Science degree. Two of the degrees are Associate of Science degrees, while one of the degrees is an Associate of Applied Science. Generally, more degrees are offered compared to certificates. To date, TBCC has not had any student enroll in the Animal Science program, so the number of students in these programs is higher than TBCC enrollment. There are many students who think they want to work with animals and believe that becoming a veterinarian is their only option.

### Natural Resources

Across Oregon CCs, 28 different degrees related to Natural Resources were offered. There were more Associate of Applied Science degrees (16) compared to Associate of Science degrees (12). Finally, 53% of the degrees offered a certificate option. More degrees were awarded compared to 1-year certificates for every program.

The Fire Science degrees were exclusively Associate of Applied Science degrees and had the most options across the state (11). One-year certificates were available at 72% of the Fire Science programs, and some institutions also included the EMT certification as part of their program. The enrollment numbers in these degrees were generally high and may be something for TBCC to consider adding in the future.

The next most prevalent programs were Geographic Information Systems (GIS) (5) and Natural Resources (5). Every one of the GIS programs offered a 1-year GIS certificate. These certificates fell under a range of differing degrees. There was an even split between AS and AAS degrees. Geographic Information Systems is a relatively new field, so enrollment data was limited in 2016. Finally, Natural Resources programs were offered as both AS (3) and AAS (2) degrees across the state. The enrollment numbers at peer institutions are slightly higher compared to TBCC enrollment numbers, but not by much.

## Forestry

Across Oregon CCs, 9 different Forestry degrees were offered. The Forestry degrees were almost exclusively offered as Associate of Science degrees (8) compared to Associate of Applied Science (1). Data were limited to look at degree and certificate award numbers. From the very limited available data, more certificates were awarded compared to degrees, however these data are limited.

The Forest Management degree was the most common degree offered (3). From the one school with available data, TBCC has more students on track to complete the degree compared to the enrollment numbers presented.

### *2.3 Student Enrollment and Achievement by Gender and Race/Ethnicity*

*Analyze the achievement levels for each of the groups listed below. Are there differences in achievement levels across groups? Are there strategies you can implement to provide more support for these populations?*

*(Attach to Appendix or provide below the Persistence and Success Rates by Gender and Race/Ethnicity as identified by the Office of Institutional Research)*

#### *Sex/Gender of Students*

Major	Women	Men
All AGNR Majors	50%	50%
All other majors at TBCC	62%	38%

Note: In the last program review, only 25% of the students identified as female, there has been an increase in females in the AGNR programs.

#### *Race/ethnicity of students*

Major	Latinx	White	Other
All AGNR Majors	5%	84%	11%
All other majors at TBCC	20%	70%	10%

Note: 25% of students enrolled in AGNR classes identify as Hispanic/Latino, but only 5% of program majors identify as Hispanic/Latino.

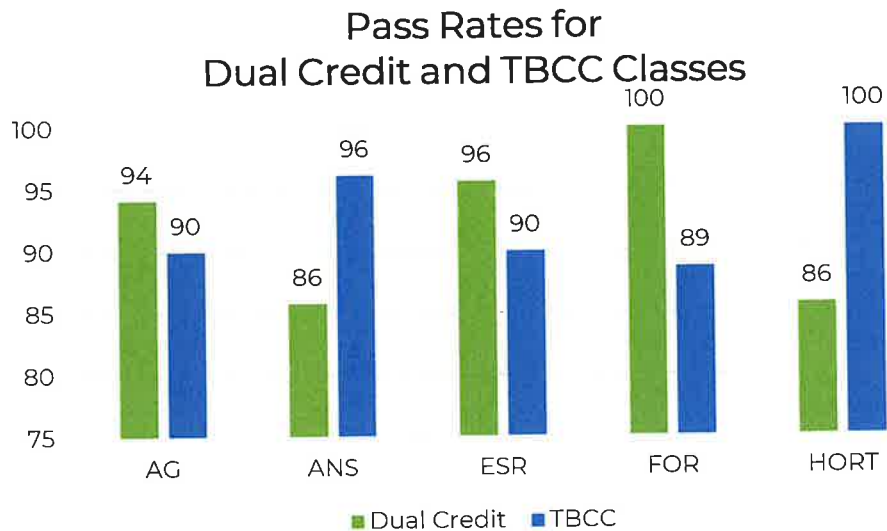
*Retention for full-time and part-time students*

	Persisted to Winter		Dropped		Total n
Majors	n	%	n	%	
AG/NR/FOR	12	70.59%	5	29.41%	17
Full-time	7	63.64%	4	36.36%	11
Part-time	5	83.33%	1	16.67%	6
Other Program majors	206	74.37%	71	25.63%	277
Full-time	146	80.22%	36	19.78%	182
Part-time	60	63.16%	35	36.84%	95
Grand Total	218	74.15%	76	25.85%	294
	Fall to Fall Retention		Dropped		Total n
Majors	n	%	n	%	
AG/NR/FOR	9	52.94%	8	47.06%	17
Full-time	6	54.55%	5	45.45%	11
Part-time	3	50%	3	50%	6
Other Program majors	114	41.16%	163	58.84%	277
Full-time	93	51.10%	89	48.9%	182
Part-time	21	22.11%	74	77.89%	95
Grand Total	123	41.84%	171	58.16%	294

***Analysis:***

While the numbers are small for the program, fall to fall retention was slightly higher for the AG/NR/FOR programs compared to all other programs, both for part time and full-time students. From fall to winter, retention was slightly lower in the AG/NR/FOR compared to all other programs, and there was less retention for full time students compared to part time students, which is a trend generally not observed. It is unclear why the fall to winter retention was higher for part-time students compared to full-time students, and it is also important to recognize that the sample size is relatively small, so it is difficult to draw conclusions.

## 2.5 Other Data – Pass Rates for Dual Credit and TBCC Classes



### *Analysis*

There is variability between pass rates for dual credit or TBCC classes and no consistent trend of higher pass rates in one format of teaching versus the other.

## 2.6 Strengths, Weaknesses, Opportunities, Challenges (SWOC)

### 2.6.1 What are the strengths of your program as indicated in the above data?

- Forestry program is increasing in enrollment
- General trends indicated increasing enrollment in the programs until COVID-19 impacted Spring 2020 enrollment and class offerings.
- There is equal gender representation in the program. Female representation increased from 25% to 50% between the last program review to this current program review.
- Retention rate is slightly higher in the AGNR programs (53%) compared to all other college programs (43%).

### 2.6.2 What are the weaknesses of your program as indicated in the above data?

- Significantly fewer number of students who identify as Latino/Hispanic in program classes.
- While the sample size is small, from the limited data provided, there were more full-time students who did not persist from Fall to Winter, compared to part time students.
- 47% of AGNR majors dropped from Fall to Fall. While this is less compared to all other majors (58%), this is still an area for improvement.

- Number of Dual Credit sections offered decreased from Winter 2019 to Winter 2020, this was mainly due to fewer sections of ESR 171.
- Males are passing at a lower rate compared to females.
- Latino/Hispanic students are passing at a lower rate compared to white students.

### 2.6.3 What are the opportunities for your program as indicated in the above data?

- Determine alternative Dual Credit courses to offer. ESR 171 has been offered in the past, isn't part of any of the program degree maps. Could FOR 111 be an alternative? Is there another alternative that would work better?
- Continue to work on retention from Fall to Winter and Fall to Fall.
- Continue to develop aligned assessments for dual credit courses.
- Increase female instructors in the programs.
- Increase students who identify as Latino/a/x/Hispanic in the program.

### 2.6.4 What challenges exist for your program based on the above data?

- Animal Science and Agricultural Science enrollment numbers are low. Is there another type of degree that would have higher enrollment?
- Determine the best ways to support retention

## 3.0 STUDENT LEARNING OUTCOMES ASSESSMENT

### Overall SLO data for Nature and Outdoors program

	2018-2019	2019-2020
Course Learning Outcomes	83	84
Program Learning Outcomes	80	80
Institutional Learning Outcomes	77	79

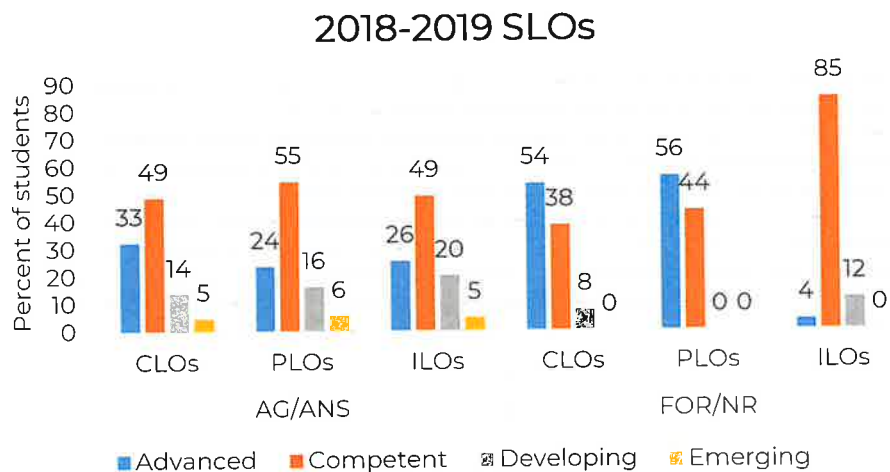
Overall, students are achieving the student learning outcomes (SLOs) in the Nature and Outdoor Program. The achievement rates are high and this is most likely due to continued work on CCOGs, alignment with OSU curriculum, alignment between TBCC and Dual Credit classes, and collaboration among faculty.

The following data break down achievement rates by degree areas as well as assess ILOs across the learning community.



	AG/ANS	FOR/NR
Course Learning Outcomes	81	92
Program Learning Outcomes	78	100
Institutional Learning Outcomes	75	88

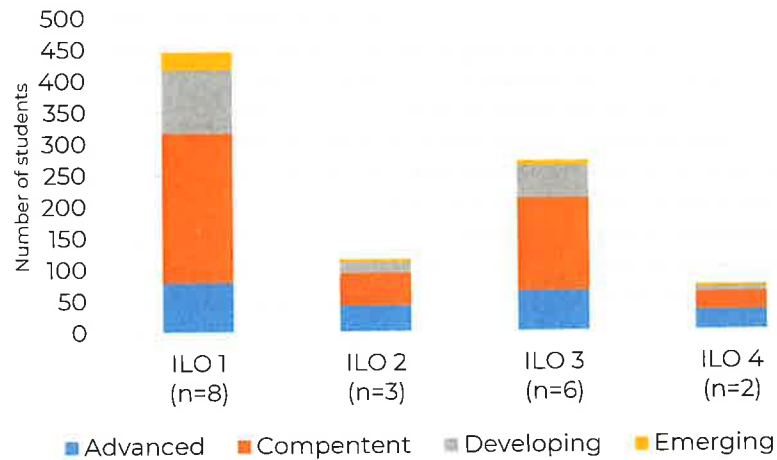
Student achievement was slightly higher in the FOR/NR classes compared to the AG/ANS classes. One explanation for this outcome is that there were more AG/ANS Dual Credit classes offered, and so students did not yet achieve program learning outcomes and institutional learning outcomes. Additionally, there were more AG/ANS classes offered in general in 2018-2019, which could have led to more variability in student performance.



This graph further breaks down the level of competency students scored in each level of the student learning outcomes. When comparing student achievement across CLOs, PLOs, and ILOs in AG/ANS classes, there is a consistent achievement trend; generally, most students were competent at each learning outcome level (CLO/PLO/ILO). In the FOR/NR classes, this trend is not observed. The majority of students were advanced for both the CLOs and PLOs, but the overwhelming majority of students were measured as competent at the institutional level. There were two FOR/NR classes evaluated, and they were both in the first two terms of the degree, so while students were achieving at advanced levels according to CLOs and PLOs, they had not yet achieved an advanced level at the institutional level.



## 2018-2019 ILO Achievement for Nature and Outdoors Program



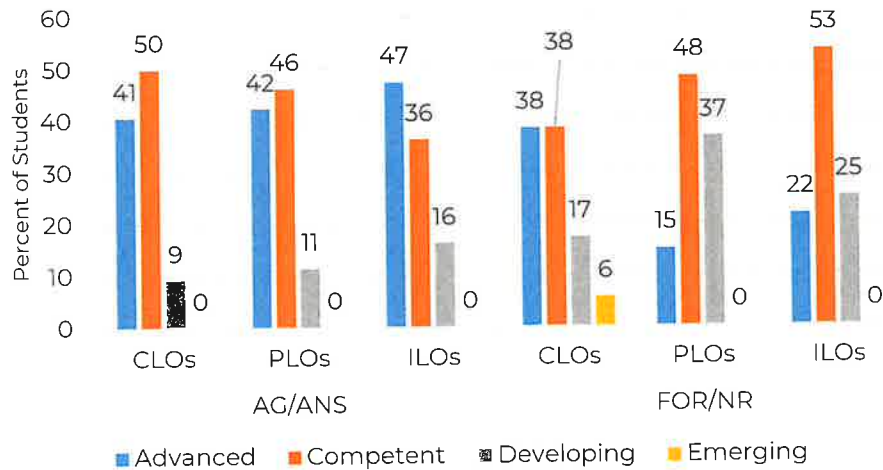
This graph shows that in the Nature and Outdoors program, ILO 1 was measured the most and ILO 4 was measured the least (and in 2018-2019, 0 FOR/NR classes taught ILO 4). This leaves an opportunity to incorporate *ILO 4: "Student will demonstrate respect, honesty, and ethical principles by understanding and appreciating differences in cultures and behaviors,"* in more of the curriculum.

### 2019-2020

	AG/ANS	FOR/NR
Course Learning Outcomes	91	77
Program Learning Outcomes	89	63
Institutional Learning Outcomes	84	75

This table shows that overall achievement of SLOs was higher in the AG/ANS classes compared to the FOR/NR classes.

## 2019-2020 SLOs



This graph shows that on average, students in the AG/ANS classes were measured more often at the advanced levels for all three levels of student learning outcomes compared to FOR/NR classes.

### 3.1 *How has assessment of course level SLOs led to improvements in student learning and achievement?*

Generally, students have achieved the SLOs in Ag, Animal Science, Forestry, and Natural Resource classes. The data above demonstrates the majority of students in both dual credit and TBCC classes are achieving advanced or competent ratings in the Nature and Outdoors classes.

#### Forestry/Natural Resources

The assessment of course level SLOs has led to more alignment in curriculum across forestry classes so that students build on concepts from one course to the next. For example, there was collaboration between the Intro to Forestry and Forest Biology classes so that forest health issues were introduced in the Intro to Forestry class and expanded upon in Forest Biology. As a result, students are able to gain a higher level of understanding when they can build on their foundational knowledge from the initial course learning outcomes in introductory classes, and apply some of that knowledge in later classes.

## Agriculture/Animal Science

Overall achievement in the AG/ANS classes was high in both 2018-2019 and 2019-2020 academic school years. There is continued collaboration with Dual Credit and TBCC instructors to align dual credit classes such as ESR 171, ANS 121, and HORT 111.

### 3.2 How has assessment of program-level SLOs led to improvements in transfer or certificate/degree awards?

All content specific classes in AG, ANS, FOR, and NAT classes have student learning outcomes that directly align with OSU's classes to ensure that classes directly articulate to OSU. This means that students are more ready to transfer when they complete any of the degrees within the Nature and Outdoors program.

In the previous Program Review, there was still the AAS in Agriculture and Natural Resources. This degree was attempting to serve as both a transfer and terminal degree and resulted in ineffectively achieving either goal. By creating four AS transfer degrees, students are taking the classes they need to arrive at OSU as a junior. The first cohort will graduate at the end of Spring 2021, and the subsequent Program Review will be able to evaluate the success of transfer to 4-year institutions.

### 3.3 What challenges remain to make course and program level Student Learning Outcome Assessment more effective for your program?

There are there main challenges to make course and program level assessment more effective for my program:

1. **Data** – data collection for SLOs has been a work in progress. With updated data collection practices, the hope is that data can be disaggregated by students as well as collated to align with the data provided by the Office of Institutional Effectiveness.
2. **Aligned rubrics** – There is discrepancy between the understanding of different achievement levels at each level of outcomes assessment. Over time, it is the goal to develop rubrics for the CLOs in key ANS and FOR classes that are taught by multiple instructors.
3. **Aligned program learning outcomes** – it was possible to evaluate the gaps of ILOs within the Nature and Outdoor Program because there were shared ILOs across all classes. It would be equally beneficial to do this at the PLO level, and it is the goal to align PLOs across all degrees (with limited exceptions) so that PLO evaluation is possible in the next Program Review. Over the next year, key signature assignments to measure PLOs will be determined in classes in the FOR/NR classes and the AG/ANS classes.

## **4.0 EVALUATION OF PROGRESS TOWARD ACHIEVEMENT OF PREVIOUS PROGRAM PLANS**

- 4.1 Evaluate steps taken to achieve plans established in the last program review.
- **Expand certificate offerings in the AgNR program**  
Certificates were not expanded in the last 3 years. Instead, the focus was on creating 4 new fully transferrable degrees in Agricultural Sciences, Animal Sciences, Natural Resources, and Forestry.
  - **Expand course offerings to include more general agriculture and natural resource offerings**  
New forestry classes were added for the forestry degree map, and 200 level biology, chemistry, and physics have been added so that students transfer with the correct science classes. There also was a new ANS class (ANS 122) developed and offered (although it didn't run due to low enrollment). This class was developed due to industry feedback around particular content needed in the new Ag Tech program so that students would be proficient in Large Animal Handling, factors for Milk Quality, and Nutrition as dairy robotics technicians.
  - **Review current course offerings and revise as needed**  
Class offerings were narrowed so that students had a clear path for what they needed to transfer to OSU. As mentioned above, 200 science classes were added to TBCC to fulfill the requirements in the Forestry, Natural Resources, and Animal Science degrees.
- 4.2 In cases where resources were allocated toward goals, evaluate the efficacy of that spending.  
\$7,313 in Perkins Funds and \$396.81 in program funds purchased forestry supplies, and this has greatly enhanced the lab activities in all forestry classes. Additionally, \$4,174 in Perkins Funding has purchased ag specific class equipment to support ANS 121 and ANS 122.

## **5.0 PROGRAM PLANS**

## ***5.1 Short-term Plans (three-year cycle)***

- **Develop aligned Program Learning Outcomes for FOR/NR/AG**  
As mentioned in the SLO section, alignment of PLOs for FOR/NR/AG will allow for more analysis across classes and provide the ability to assess if there are any specific gaps that need to be addressed so that students are ready whether they graduate and transition directly into the workforce, or transfer to OSU. One way to evaluate PLOs is through creating signature assignments in key classes throughout the degree to measure student progress. One specific goal with PLOs is to incorporate a climate change component as a PLO that is addressed in every AG/NR/FOR class. This is an ever-pressing need in Ag/Natural Resources/Forestry and something that graduating students need to be prepared to address in future careers.
- **Assess viability and determine curriculum for a 1-year GIS certificate**  
With numerous Natural Resource and Forestry agencies in Tillamook County, a 1-year GIS certificate could be a very attractive option for professionals who want to enhance their skills in this very necessary and increasingly important technology. There are currently five other community colleges in Oregon that offer a 1-year certificate that can be used as models when determining what may be right for TBCC.
- **Implement a pilot non-credit Ag Business accelerator course to gauge community interest in Ag Business knowledge**  
General enrollment in the Agricultural and Animal Sciences classes has been low at TBCC (although there are still high numbers in Dual Credit classes). Recent feedback indicates that small producers in Tillamook County need business management support in addition to marketing, value-added products, and other topics. Chemeketa currently offers a non-credit 2-year program for producers and could provide as an excellent model for developing a program at TBCC.
- **Continue to foster relationships with future employers**  
The Forest Service, based in Hebo, OR, has been an excellent partner with providing summer and full time employment for TBCC Forestry and Natural Resources students. As the program grows, it will be important to connect with other local agencies (ODF, Oregon State Parks, local non-profits, etc.)
- **Continue to develop and revise a recruitment plan for the Nature and Outdoors program.**  
There has been considerable work creating promotional social media posts and updating brochures on the local level. Continued recruitment at the high schools through the dual credit classes will also be necessary for increasing

enrollment in all programs. In this short-term goal, the Nature and Outdoors Program will continue to work with the marketing department to develop and implement a plan that promotes the program and encourages involvement.

Additionally, the program coordinator has created a new summer program called *Juntos Afuera*, for Latinx/o/a high school students in Tillamook County. The goal of this program is to show Latinx students that the outdoors are an inclusive and safe space where they can learn about and celebrate their culture. Additionally, the goal is to provide leadership development skills that begins to grow an active group of Latinx explorers and stewards. There is a hope that some students may choose to explore a career or educational path in Natural Resources or Forestry after participating. It will be a few years before those data are available to measure if this happens or not.

## ***5.2 Long-term Plans (six-year cycle)***

- **Create a partnership at Anderson Hill with the County**  
Anderson Hill is county property located just 15 minutes from TBCC's campus and has applications for every class in the Forestry and Natural Resources program. While labs are currently taking place at Anderson Hill for some of the classes, a formal partnership may allow students to do more to apply their skills by completing surveys, mapping the area, and creating management plans. Next steps include talking with OSU about how they manage and create strategic plans for their experimental forests to then present to a group of adjunct faculty. When meeting with all adjunct faculty, the group will articulate how to incorporate Anderson Hill into their curriculum and collaborate across classes. This will also help determine how a partnership may be possible to do some harvesting in the future. This area has the potential for future research and could be designated as an experimental forest, but much work needs to be done to make this determination.
- **Explore an Ag Business program**  
As mentioned in the above short term goal section, starting with a non-credit Ag Business accelerator series of classes will be a starting point to gauge local producers in their interest in a credit program. Four other community colleges across the state have either an AS or AAS degree for agricultural business management, and this may be an area to include as a degree if that is a need/want from our local producers. There may not be interest in a for credit degree program, Chemeketa's non-degree program has remained this way for 30 years and served the needs of their community, so this is something that still needs to be explored.

- **Explore a Fire Science Program**

As seen in the peer comparison chart, many other community colleges across the state offer a fire program. There may be an opportunity to add a fire program related to Forestry and Natural Resources, and partner with ODF and other local agencies for summer employment opportunities. Additionally, BMCC and Chemeketa offer 1-year EMT certifications in their Fire Sciences programs, and this may be something that could be offered in partnership with the health care department.

- **Monitor student transfer success**

Most students in the Nature and Outdoors program will transfer to OSU to finish a 4-year degree. As students transfer, it is vital for the program to monitor successes and challenges, both with actual transfer logistics as well as content knowledge. OSU Open Campus is currently working on evaluation metrics to be approved by the IRB, to better understand the successes and challenges of transferring.

*What specific aspects of these plans can be accomplished without additional financial resources?*

Most of these goals require the time of the program coordinator, but no additional financial resources are needed. If a GIS certificate is added, there may be additional costs associated with that certificate, but to determine its viability, there are not additional resources required at this time.

To create a partnership with Anderson Hill and align PLOs, the program faculty will request funding to pay for adjunct time to meet as a group and discuss these topics.

The current budget is sufficient to meet continual program needs. See attached budget document.

# BUDGET FOR AGRICULTURE, NATURAL RESOURCES, AND FORESTRY PROGRAM

ACCOUNT CODE	DESCRIPTION	2018-2019 ACTUAL	2019-2020 ACTUAL	2020-2021 ADOPTED	2021-2022 PROPOSED
<b>1000-260 LDC - Agriculture/Natural Resources/Forestry</b>					
<b>PERSONNEL SERVICES</b>					
1000-260-5060-00	Instructional Salaries - Adjunct	28,739	9,105	14,352	14,352
1000-260-5070-00	Hourly Wages	903	(309)	2,800	2,800
1000-260-5080-00	Other Payroll Expenses	10	3	22	22
1000-260-5082-00	Workers' Comp Insurance	128	36	74	59
1000-260-5083-00	FICA	2,268	673	1,312	1,312
1000-260-5084-00	PERS Contributions	3,340	1,479	1,063	1,191
1000-260-5085-00	Unemployment Insurance	694	149	223	275
<b>MATERIALS AND SERVICES</b>					
1000-260-6010-00	Supplies	-	-	1,500	500
1000-260-6012-00	Textbooks	33	3	600	600
1000-260-6020-00	Travel and Meeting	428	-	1,400	1,000
1000-260-6170-00	Other Contracted Services	32,900	44,092	45,000	50,000
1000-260-6302-00	Other course Expense	79	802	1,000	1,000
<b>LDC - AGRICULTURE/NATURAL RESOURCES/FORESTRY TOTALS</b>		<b>69,522</b>	<b>56,033</b>	<b>69,346</b>	<b>73,111</b>



## 6.0 REQUESTS FOR RESOURCES

For any specific aspect of a plan listed in 5.0 that would require additional financial resources, complete the form below. If you are aware of a potential funding source other than college general funds, identify the potential source below.

Type of Resource	Requested Amount	Potential Funding Source
Personnel	\$500	AG/NR/FOR budget
Facilities		
Equipment		
Supplies	Currently \$1,000	Is sufficient
Computer Hardware		
Computer Software		
Training	\$1,500	Perkins Funding
Other (promotion)	\$500	
Total Requested Amount	\$3,500	

### 6.1 Describe the resource request.

Funding to pay 7 adjuncts a total of 4-5 hours to meet and provide feedback on two specific projects related to the FOR/NR program.

Funding to create t-shirts for the Nature and Outdoors Learning Community.

### 6.2 What program outcome(s) does the resource request address?

By meeting with all FOR/NR adjunct faculty to gain feedback on program learning outcomes, one of the short-term goals of aligning program learning outcomes will be addressed. Additionally, a second meeting with the adjunct faculty will assist in developing a long-term plan for TBCC's partnership with Anderson Hill and how the various adjuncts can incorporate that area in parts of their labs.

For the t-shirts or hoodies, creating a sense of community and identity can be a really important component for students in college. By providing t-shirts or hoodies, students will not only feel they are a part of a program, but also help promote the program around the community when they are wearing their apparel. Marketing will be involved in the design and ordering for the t-shirts or hoodies.

### 6.3 What measurable outcome(s) will result from filling this resource request?

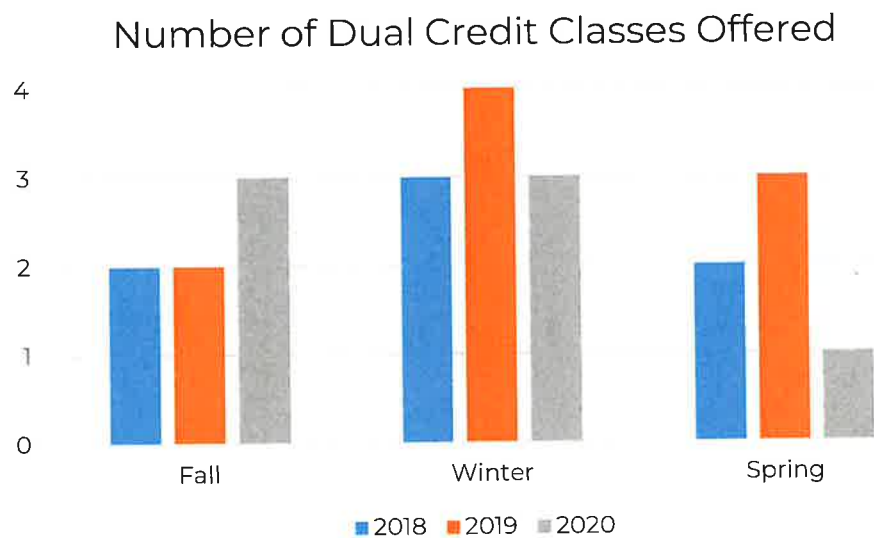
Aligned PLO assessments will support the continual improvement process for curricular and program development. A sense of community with t-shirts will support retention and potentially support increased recruitment to the program.

*6.4 How does this request further college fulfillment of the college mission and its Core Theme objectives?*

The college's big goal this year to focus on retention. Continual improvement of curriculum, as well as a sense of community both can support retention for students.

## **8.0 HIGH SCHOOL, COMMUNITY, AND EMPLOYER OUTREACH**

*8.5 (CTE and Transfer Programs) what dual credit offerings does your program support? In which area high schools are these dual credit courses offered? How will your program support the expansion of dual credit offerings at area high schools?*



The number of dual credit offerings have generally remained consistent over the last three-year period. Again, Spring of 2020 impacted the number of dual credit courses that could be offered due to COVID-19.

Dual credit courses were offered at all three school districts in Tillamook County. Tillamook High School offers the most dual credit classes compared to Neah-Kah-Nie and Nestucca. Most Dual Credit classes in the Nature and Outdoor program are offered in the agricultural science degree, AG, ANS, and HORT.

There is a goal to expand dual credit in the forestry degree by offering FOR 111 at NKN during the 2021-2022 school year. Additionally, there may be one course, NAT 201 – Managing Natural Resources, in the Agricultural Science and Natural Resource degrees that could be offered as a dual credit course. Further exploration is needed to make this determination.

## 9.0 EXECUTIVE SUMMARY

The Nature and Outdoors program has responded to student needs over the past three years and made adjustments that best serve students. By creating four completely transferrable degrees, students arrive at four-year institutions in Junior standing, without extra credits.

Enrollment in the Nature and Outdoors program has fluctuated over the last three years, mostly due to COVID-19 and course offerings both at TBCC and through dual credit. There has been an increase in the number of females in the program from the last program review to this program review. There are considerably less students who identify as Hispanic/Latino/a/x compared to the number of white students in the program as well as at the college. More work is needed to increase participation and retention for students who identify as Hispanic/Latino/a/x.

When comparing TBCC's programs with peers across the state, TBCC's enrollment numbers are slightly lower, but generally within the same range as other schools (even compared to schools with a much higher FTE). Through the analysis of other programs across the state, two programs that could be advantageous to add at TBCC are a GIS certificate and a Fire Program. Both of those programs had high enrollment numbers and are potential needs for the community. Further exploration is needed in order to determine if adding these programs makes sense for the school.

Students have been achieving the SLOs for the program. Future data collection will allow further analysis on student performance based on characteristics such as gender or race, and will help identify if there are discrepancies in achievement. Additionally, alignment of the PLOs for all degrees in the Nature and Outdoors program will help with continuous curriculum improvement.

Finally, increased participation in the Nature and Outdoors program is a constant goal. Both the short- and long-term goals in this report offer new program ideas or enhancement of current programs that will continue to build on the successes that currently exist and address emerging community needs.

# 10.0 VICE PRESIDENT OF INSTRUCTION PROGRAM REVIEW

## SUMMARY PAGE

I'd like to start my comments by thanking Megan Deane McKenna for her hard work on this Program Review and for all of her work coordinating these programs. I am very confident in their rigor, alignment and the way that they prepare TBCC students for transfer. Thanks you Megan, this hard work has not gone unnoticed.

As this review discusses, this program started as one CTE degree (AAS Forestry and Natural Resources). This program did not align well to OSU transfer programs and the majority of our students were transferring. Megan worked hard to align this one CTE degree into four completely articulated transfer degrees in Natural Resources, Forestry, Animal Science, and Agriculture. In addition to their alignment with OSU, a strength of these degrees are their alignment to TBCC's ILO's. These programs are growing slowly. Again, Megan does a great deal of work marketing her programs throughout the community and it makes a difference. Interestingly, numbers in peer programs across the state have also decreased. Covid has likely impacted enrollment. In terms of diversity, these programs are nicely split between genders, but we would like to see an increase in Latino/Latina students.

Based on all data and this report, goals are as follows:

### Short-Term

- Find an alternative dual credit class to ESR 171 (e.g. FOR 111)
- Monitor OSU Bacc Core changes
- Implement non-credit Ag Business course to gauge community interest in Ag Business endeavors
- Develop recruitment and marketing plan for degrees (and engaging business partners in this work)

### Mid-Term

- Increase program retention and completion
- Attract greater numbers of Latino/Latina students
- Align, develop and train faculty on program learning rubrics
- Add a certificate in this learning community (e.g. Fire, GIS)

### Long Term

- Create partnership at Anderson Hill
- Explore AG Business
- Explore Fire Science programs

- Monitor student transfer success

Again, I am confident in the work that Megan has under-taken and I look forward to seeing these programs continue growing and demonstrating student success in learning!