



2019-20

Instructional Program
Review

Agriculture

Keith Duren – Program Lead

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1. PROGRAM/DISCIPLINE MISSION/GOALS AND LINK TO STRATEGIC PLAN

1A. DESCRIBE PROGRESS TOWARD GOALS SET IN PREVIOUS REVIEW, ANNUAL BUDGET PRESENTATIONS, AND/OR STRATEGIC BUDGET PLANNING.

Goal 1 Improve recruitment with marketing results data.

- Target recruitment efforts thoughtfully and deliberately with data to base marketing decisions. The time spent at State FFA convention needs to provide measurable results, how to obtain those data measures? State Ag Conference after graduation, does this provide measurable results

- While I have attempted to find statistical data, it remains elusive. Anecdotal, I have observed that not being at the FFA State Convention last year was devastating. It remains to be seen what the result will be from having the convention cancelled this year due to the COVID-19 scare. It is currently my intention to visit High School Ag Classrooms throughout Southern Oregon, when and if regular High School resumes this year.
- Last year we held a National Ag Day celebration at KCC for Basin High School Ag Students. We had one planned for this year also, with over 200 students who had RSVPed that they were coming. Unfortunately, it also had to be cancelled due to the COVID-19 scare.
- I suppose that like everyone, I'll have to navigate uncharted waters in the wake of the COVID 19 situation.

Goal 2 Increase graduation rates from Ag program

- I'd like to see Ag students complete 75%

- After reviewing the available data, I believe that this is not a good goal. Utilizing the available data, I believe it would be a better goal to simply improve the number of graduates.
- A second logical goal would be to reduce the time required for students to complete those requirements.
- To that end, we have significantly reduced the number of credits required to graduate with from the program.
- Courses within the program are appropriately sequenced, and are offered frequently enough and in the right order for students to complete in a timely manner.
- The program's retention rates are around 80% (84%-79%) perhaps indicating that the steps taken thus far, are helping to keep students on track toward completion.

Goal 3 Increase employability of KCC Ag students

- Keep KCC Ag curriculum as sharp and cutting edge as possible...without losing students. It is possible to go too far at this level.

I've had employers in NE and KS looking for graduates who have had hands on with cows, using drones.

- KCC students continue to enjoy outstanding opportunities for employment, or self-employment.

<ul style="list-style-type: none"> ○ For the last two years, the Ag Department has had more employers calling and looking for students than the program has had students enrolled. ○ KCC Agriculture Science students learn to identify resources, which they can use to begin their own Agricultural enterprises. Over the last five years, approximately 10% of graduating students have started their own farms and continue to be self-employed. ○ Approximately 57% of graduates from the Agriculture Science program transfer to a University the fall after graduation.
<p>Goal 4 Understand KCC student success rates at OSU, and Iowa State, etc. for performance as compared to students who started in Corvallis</p>
<ul style="list-style-type: none"> ● Verbally, Registrar data @ OSU says KCC students are outperforming their peers at OSU. Iowa State has reported that they prefer to recruit KCC starters. I want to get these numbers E campus Provost and Dean @ College of Ag say KCC students succeed at 80 percent. How can we confirm these numbers? KBREC Liaison?
<ul style="list-style-type: none"> ○ While I have pursued this data, I have not been able to find it. I have been told it's a FERPA issue, I've been told the data isn't collected, and I've been told that the report exists somewhere at OHEC. I believe the last one to be true. ○ As we discussed during the budget process, this report will be pursued at a higher level.
<p>Goal 5 Improve Ag student graduation rates through better advising.</p>
<ul style="list-style-type: none"> ● So tired of discovering students who believe they are an Ag major but have never met with Keith. How to identify these students immediately on registration or at least Orientation? Get them assigned to Keith even if the student isn't clear about their goals.
<ul style="list-style-type: none"> ○ This continues to be a frustration. Students don't always say what they want, or even know what the options are for a major. ○ This problem is currently being addressed through communication with the staff in Student Services. ○ Our system of reassigning advisees needs to be faster and more efficient.

1B. HAVE YOU MET YOUR PREVIOUSLY SET GOALS? IF NOT, HOW DO YOU PLAN TO MEET THEM?

☐ Yes

☒ No

The goals I have set are on going, goals. I believe that I have outlined what I am currently doing in the previous points. It is my intention to continue with the efforts that have been successful thus far, and innovate new approaches to problems that do not show evidence of progress.

2. PROGRAM/DISCIPLINE DESCRIPTION AND OVERVIEW

2A. PROVIDE THE CATALOG DESCRIPTION OF THE PROGRAM.

TWO-YEAR ASSOCIATE OF APPLIED SCIENCE DEGREE

The AAS in Agriculture Science is designed for those students seeking a career in the agriculture industry and to provide students with the skills and knowledge necessary to be successful as an entrepreneur, employee, or as a student at a four-year institution. The curriculum is closely aligned with both the Oregon and national standards for agriculture and natural resource education.

Students will receive education in animal science, plant science, soil science, agribusiness management, agriculture mechanization, and natural resource management. The combination of these skills and abilities will prepare students for the exciting challenges awaiting them in the field of agriculture.

PROGRAM LEARNING OUTCOMES

Upon successful completion of the program, students will be able to:

- Explain the size and scope of the agriculture industry and their place in it.
- Apply a greater degree of agricultural literacy.
- Make decisions based on biological and economic data in order to maximize the effectiveness of agricultural systems.
- Explain the wide array of employment and career opportunities in the agriculture industry.
- Interpret scientific information to discern between scientific truths and individual bias.
- Use technical skills that will benefit them as an agriculturalist.

2B. DESCRIBE HOW AND TO WHAT DEGREE THE PROGRAM DESCRIPTION REFLECTS THE PROGRAM'S OVERALL GOALS. IF IT DOES NOT, REVISE PROGRAM DESCRIPTION.

I believe that the Program Description is accurate. This program gives a student a diverse set of skills that are necessary to become a successful Agricultural entrepreneur, Agriculture manager, or student in a four-year program. This is achieved through a unique blend of practical hands-on skills, and theoretical knowledge of how systems function. Additionally, students gain critical communication, and information systems knowledge that are requirements in the 21st century work environment. The curriculum has a heavy concentration of sciences, particularly Biology and Chemistry. These courses lay the foundation for Students to begin to learn about modern Agriculture. Our Curriculum is very closely aligned with Oregon State University's. Students can take 120 credits at KCC and finish the remaining 60 credits online for Klamath Falls, enabling them to complete their BS in Agriculture Science without leaving Klamath Falls.

2C. COMMUNITY LABOR MARKET NEED ANALYSIS AND PROJECTION

Agricultural and Food Science Technicians (194011)

East Cascades (Crook, Deschutes, Gilliam, Hood River, Jefferson, Klamath, Lake, Sherman, Wasco, Wheeler)

Description

Work with agricultural and food scientists in food, fiber, and animal research, production, and processing; and assist with animal breeding and nutrition. Conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects. Includes technicians who assist food scientists or technologists in the research and development of production technology, quality control, packaging, processing, and use of foods.

Employment Projections					
Area	Employment		Projected Annual Openings		
	2017	2027	Change	Replacement	Total
Oregon	760	871	11	81	92
East Cascades	61	73	1	7	8

Wage Range 2019				
Area	Median Hourly	Average Annual	Middle Range	
Oregon	\$20.04	\$43,816	\$17.32	23.9
East Cascades	20.20	42,588	17.65	22.8

Current Job Openings			
There are 3 current job listings for this occupation. Included: Openings 1 through 3.			
Job Title	Location	Order Number	Wage Offered
P03489UF - Faculty Research Assistant	Madras	2512300	DOE
Quality Control Supervisor	Klamath Falls	2481211	DOE
Lab Analyst	Klamath Falls	2481210	DOE

Industries of Employment
Private Sector Only
No Industry breakouts available for this occupation.

Related Occupations
No occupations with similar skills data is available for this occupation.

Statewide Employment Analysis: Employment in this occupation in 2017 was similar to most occupations across the state. The total number of job openings is projected to be similar to job openings for most occupations in Oregon through 2027. This occupation is expected to grow at about the statewide average growth rate for all occupations through 2027. Reasonable employment opportunities exist.

Area Employment Analysis: Employment in this occupation in 2017 was similar to most occupations in the region. The total number of job openings is projected to be similar to job openings for most occupations in the

region through 2027. This occupation is expected to grow at a somewhat faster rate than the regional average growth rate for all occupations through 2027.

Educational Requirements: The typical entry level education for this occupation is an associate's degree.

Prospective Jobs

Farmworker	Agricultural & food science technician	Environmental engineering technician
Vocational education teacher	Supervisor/manager farming, fishing, and forest	Environmental scientist

Accompanying PDF or see end of document for use in appendix

<https://www.klamathcc.edu/Academics/Programs/Agriculture-Science>

2C.I. HAS THE DEMAND FOR GRADUATES CHANGED IN THE PAST FIVE YEARS? IF SO HOW AND TO WHAT DEGREE?

☒ Yes

☐ No

The demand for qualified Agriculture professionals has increased rapidly over the last five years. Currently the average age of farmers/ranchers in the United States is over 60 years old. This average is even higher in the Klamath Basin. The Department of Labor estimates an increased demand of more than 14% over the next few years. Five years ago, they only estimated a projected growth of 9%. Not included in those statistics is a greater than 20% shortage of Agriculture Teachers, for both the state of Oregon and for the Nation.

2C.II. WHAT IS THE EXPECTED MARKET DEMAND FOR THE FUTURE? HOW MIGHT THE LABOR MARKET NEED PROJECTION AFFECT THE PROGRAM? HOW MIGHT THE PROGRAM ADJUST TO THESE PROJECTIONS?

As previously stated, the market need projections for the state are for more graduates than currently existing programs in Oregon can provide. We have recently streamlined our curriculum, in an effort to get students into the workforce faster.

2D. DESCRIBE THE SPECIFIC CURRICULAR, INSTRUCTIONAL, OR OTHER CHANGES MADE IN THE PREVIOUS FIVE YEARS.

We have recently cut the number of required credits for a degree from 107 to 93. In addition, our classes have become more hands on with more individual and team projects required from students. We have added cattle to our Animal Science curriculum. (Beef Cattle are the Basin's most important

commodity). Our Agriculture Business Management students actually visit with both USDA agents and commercial bankers, to better understand how to get working capital to start their own farms. In addition to this, they put together a business plan, fill out a schedule F (tax form for farm income), and learn to apply for Agriculture loans. Students in Forage Production, visit equipment dealers, put together wheel lines, and visit with producers to better understand the challenges of forage production.

3. RESOURCES

3A. DESCRIBE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT.

The instructors in the Agriculture Science program are highly skilled professionals with a combination of skills and education that is appropriate for the classes that they teach. Keith Duren teaches the majority of the classes in the program. He has a Master of Science in Agricultural and Extension Education from Montana State University, along with a lifetime of work experience in many phases of the Agriculture industry.

Tyrell Kliwer teaches Livestock Evaluation for KCC. Mr. Kliwer has a Bachelor of Science degree from Oregon State University. Mr. Kliwer is nationally recognized for his skill as a livestock judge, and his ability to produce high quality registered Angus and Gelbvich Bulls. He has sold bulls at every major registered bull venue in the Western United States. He was also a nationally ranked collegiate livestock judge. As much as I would like to further utilize his talents, he is a very busy entrepreneur.

Dennis Oden teaches Agriculture and Natural Resource Law at KCC. Mr. Oden has a Juris Doctorate degree from Willamette University. He is a lifetime Klamath Falls native, who enjoys teaching at both KCC and OIT. He has had his own practice, and currently consults on numerous Natural Resource Law cases.

3A.I. WHAT PERCENT OF FACULTY ARE FULL-TIME? PART-TIME?

Instructor Contact List by CMA

Taught a courses in AGR

Between Fall 2018 and Spring 2020

FIRST NAME	LAST NAME	EMAIL ADDRESS
Keith	Duren	duren@klamathcc.edu
TYREL	KLIEWER	tyrel.kliwer@faculty.klamathcc.edu
Dennis	Oden	dennis.odan@faculty.klamathcc.edu

3A.II. DESCRIBE FACULTY DEGREE ATTAINMENT. WHAT ARE THE MINIMUM DEGREE QUALIFICATIONS? WHAT PERCENT OF FACULTY EXCEED MINIMUM DEGREE QUALIFICATIONS?

ID	Instructor Name	Taught DC	Taught RG	Sub Group	Original Hire Date	School	Degree	Major
527155	Duren, Keith	Y	Y	F9MO	9/5/2006	Montana State Univ	Bachelor of Science	Agriculture & EXT. EDU.
527155	Duren, Keith	Y	Y	F9MO	9/5/2006	Montana State Univ	Master of Science	Agriculture Education
515619	KLIEWER, TYREL	N	Y	ADJCR	1/8/2014	OREGON STATE UNIVERSITY	Bachelor of Science	Animal Science
500483	Oden, Dennis	N	Y	ADJCR	4/7/2007	Willamette University	Juris Doctoral Degree	Law

3A.III. LIST THE SPECIFIC PROFESSIONAL DEVELOPMENT PROGRAM FACULTY ATTENDED INCLUDING BOTH ON-SITE AND OFF-SITE TRAININGS; HOW DID THE PROFESSIONAL DEVELOPMENT IMPACT INSTRUCTION, DESIGN, AND DELIVERY?

Most of the conferences Mr. Duren attends require him to teach, providing professional development for others. Mr. Duren dutifully attends both the Sumer Oregon Ag Teachers Association (OATA) Conference, and the Fall OATA Conference. At the most recent (2019) Fall conference he attended a workshop on teaching trait heritability in beef cattle to students. Mr. Duren immediately utilized this approach in his Animal Science classes. He also attends an annual Spring conference for college Ag Teachers. We did not have the meeting this year, due to the COVID-19 scare. At the previous one (2019) we discussed ways to better utilize the Cooperative Work Experience to meet instructional goals. At least once every 5 years Mr. Duren attempts to attend a National Ag Teacher Conference.

3A.IV. ARE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

☒ Yes

☐ No

☐ Somewhat

3B. DESCRIBE THE SPECIFIC FACILITIES, EQUIPMENT, AND MATERIALS USED BY THE PROGRAM.

3B.I. ARE FACILITIES MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

☐ Yes

☐No

☒Somewhat

The Facilities are currently satisfactory, but will not be adequate as enrolment increases. The Ag Lab was only designed to handle 16 students total. This space was designed to be temporary.

3B.II. IS EQUIPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

☐Yes

☐No

☒Somewhat

There is a local need for AI (Artificial Insemination) Technicians. We currently do not have the equipment to produce students who are qualified AI Technicians. The program lead and Advisory Committee are currently seeking outside funding to proceed with purchasing additional equipment to meet this need.

3B.III. ARE INSTRUCTIONAL MATERIALS MEETING PROGRAM NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

☒Yes

☐No

☐Somewhat

3C. DESCRIBE THE INSTRUCTIONAL SUPPORT SERVICES THE PROGRAM USES.

3C.I. REVIEW LRC HOLDINGS FOR RELEVANCY AND CURRENCY TO PROGRAM.

The LRC has been adding updated material a little at a time for about 3 years. Previously the LRC holdings related to Agriculture were dismal at best.

KCC Agriculture Program Review – Library Support

5/5/2020

Consortium:

As a member of the Sage Library System, the KCC library provides students and faculty access to the holdings more than 70 libraries in 15 counties of eastern and central Oregon. The library is also a member of the Orbis Cascade Alliance courier system, which provides students access to the holdings of 38 academic libraries in Oregon and Washington.

Electronic Resources:

Databases

1. Agricola database – bibliographic records from the U.S. Department of Agriculture National Agriculture Library
2. Business Source Premier – agriculture related subjects and business
3. Legal Collection database – agriculture related subjects and legal issues

4. Masterfile Premier – full text periodicals, reference books and primary source documents – many including agriculture related subjects
5. Professional Development Collection – education related journals and reports – many full text articles relating to agriculture subjects
6. Regional Business News -full text business publication articles including many with agricultural related subjects
7. Vocational and Career Collection – full text trade and industry periodical articles including many on agricultural related subjects
8. Associates Programs Source – full text journals for two-year colleges – many agricultural related articles
9. CQ Researcher – full text reports on current issues such as agricultural research, farm produce and commodities, livestock, pesticides and farm loans/subsidies
10. Credo Reference – books, dictionaries and encyclopedias with agricultural related subjects
11. Films on Demand – videos about agriculture related subjects
12. OneFile: Agriculture – full-text and peer reviewed journal articles
13. OneFile: Business – full-text documents and peer reviewed journals with agriculture related subjects
14. OneFile: Gardening and Horticulture – magazines, academic journals, eBooks, videos
15. General OneFile – magazines, full text academic journals –many with agricultural related subjects

eBooks

1. MasterFILE Reference eBook Collection – eBooks on many agriculture related subjects
2. Science Reference eBook Collection – includes eBooks on agriculture - science and technology
3. Other eBooks – 556 agriculture related titles including agriculture-economic aspects, farm management, sustainable agriculture, equine science, food industry and trade, agriculture-environment aspects, agricultural biotechnology

Physical Holdings: Books and DVDs

1. Soil Science Management
2. Our Daily Bread: the Essential Norman Borlaug
3. Sustainable Agriculture
4. The Wizard and the Prophet: Two Remarkable Scientists and their Dueling Visions to Shape Tomorrow's World – Charles C. Mann
5. Agricultural Mechanics: Fundamentals & Applications – Ray V. Herren
6. Humane Livestock Handling – Temple Grandin
7. Engineering Principles of Agricultural Machines
8. Defending Beef: The Case for sustainable Meat Production – Nicolette Hahn Niman
9. Introduction to Agricultural Economics
10. Livestock Protection Dogs: Selection, Care and Training – Orysia Dawydiak
11. Farming Without the Bank: Your Solution to Farm Finance – Mary Jo Irmen
12. Corporate Agriculture Cultivating Trouble
13. Alternative Agriculture Food for Life
14. Agriculture in World History – Mark B. Tauger
15. Introduction to Agricultural Economics
16. Humane Livestock Handling – Temple Grandin
17. Introduction to Agroecology: Principles and Practices – Paul A. Wojtcowski
18. Plants, Biotechnology and Agriculture – Denis J. Murphy
19. Engineering Principles of Agricultural Machines
20. Equine Science – Rick Parker
21. Handbook of Livestock Management – Richard A. Battaglia
22. Financial Management in Agriculture – Peter J. Barry
23. Biotechnology on the Farm and in the Factory
24. Agriculture in World History – Mark B. Tauger
25. The Agricultural Revolution of the 20th Century – Don Paarlberg

26. Agriculture, Food and Natural Resources
27. Seeds of Science – Mark Lynas
28. Organic Farming: How to Raise, Certify and Market Organic Crops & Livestock – Peter V. Fossel
29. Defending Beef: The Case for sustainable Meat Production – Nicolette Hahn Niman
30. Livestock Protection Dogs: Selection, Care and Training – Orysia Dawydiak
31. Wild Rangelands: Conserving Wildlife While Maintaining Livestock in Semi-Arid Ecosystems

3C.II. REVIEW PROGRAM STUDENT USE OF TUTORING AND E-TUTORING.

There is a serious lack of tutoring available for specific Agriculture courses, however Agriculture students take a lot of General Science Courses, and these courses are well supported with tutors.

LRC Tutoring Center Supports

Summer 2018 through Winter 2020

Tutoring Center Users:

Accounting/Business/Computers:	828
Math/Nursing/Science:	6268
Literature/Speech/Writing:	1005
Other:	553

3C.III. REVIEW PROGRAM STUDENT USE OF TESTING SERVICES.

Agriculture students utilize the Testing Center for the majority of their tests in within the discipline.

LRC Testing Center Supports

2016 to (5/7/20)

Testing Center Exams:

Agriculture

2016	140
2017	140
2018	120
2019	173
2020	22

3C.IV. REVIEW OTHER INSTRUCTIONAL SUPPORT SERVICES (STUDENT CLUBS, ADVISING, TRIO, VETERANS SERVICES, ETC.) IF APPLICABLE.

The majority of Agriculture students are members of the Klamath Collegiate Farm Bureau club; many are also members of Oregon Young Farmers and Ranchers. This provides a social outlet for people interested in Agriculture, as well as access to Agriculture students and professionals from all over the United States and Canada.

Mr. Duren maintains a robust Social Media presence to support students in the Agriculture Program. Klamath Collegiate Farm Bureau and has both a Facebook page and an Instagram page. Social Media has an amazing reach.

Mr. Duren is the default advisor for Agriculture Science, and he has recognized that students do much better when he is their advisor. Veterans utilize the Veterans Services on campus. Veterans Services is very willing and easy for Mr. Duren to work with on behalf of the students. It has been observed that when Mr. Duren and Veterans Services could be listed as Co-Advisors it was easier to ensure that things worked, as they should.

Mr. Duren has observed that students utilizing Trio for advising often do not get the best advising possible. Again this situation might be improved if they could be listed as Co-advisors.

3D. DESCRIBE TO WHAT DEGREE THE PROGRAM USES THE COLLEGE'S LEARNING MANAGEMENT SYSTEM (CANVAS) FOR ALL METHODS OF DELIVERY (FACE-TO-FACE, ONLINE, SYNCHRONOUS, HYBRID).

All of the discipline specific classes in the Agriculture Science Program are on Canvas. They are all face to face courses, so I believe that Canvas is not as fully utilized as it would be for other modalities.

4. EFFECTIVENESS

4A. STUDENT LEARNING OUTCOMES ASSESSMENT

4A.I. COURSE LEARNING OUTCOMES (CLO)

Winter 2018 ILO in ANS 215

4A.I.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN CLOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

Students have multiple opportunities to demonstrate proficiency. These include tests, skills assessments/demonstrations in lab, and in class presentations in front of their peers. Students demonstrated proficiency at a rate of 95%. I consider this an acceptable outcome.

4A.I.2 DESCRIBE THE SPECIFIC PROCESS FOR ADVISORY COMMITTEES FOR REVIEWING COURSE CONTENT AND OUTCOMES GUIDES (CCOGS). IF THERE IS NO PROCESS, DESCRIBE PLANS TO ADDRESS THIS.

The Agriculture Science Advisory Committee is made up of Agriculture professionals, and educators. They review Course Learning Outcomes for Agriculture classes at least once every year. Students are also invited to every meeting, affording the committee the opportunity to get feedback about the program directly from students.

4A.I.3 WHICH COURSES HAD LEARNING OUTCOMES REVISED/UPDATED AND WHY?

All CLOs are reviewed at least once per year. It is rare that they are not updated at least once every 2 years.

4A.I.4 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF CLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

After reviewing assessment data from 2018, in 2019 the instructor for CSS 210, began using examples of forage plans for students to emulate on their projects.

4A.II PROGRAM LEARNING OUTCOMES (PLO)

<https://info.klamathcc.edu/AM/SLO%20Assessment%20Plans%20and%20Reports/Forms/AllItems.aspx>

Assessment reports are in folder

Fall 2018 ANS 121

Winter 2019 CSS 210

4A.II.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN PLOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

All CLOs are aligned with the PLOs, and students routinely demonstrate proficiency in CLOs. Additionally the Cooperative Work Experience, gives students the opportunity to demonstrate their proficiency in PLOs.

According to Oregon State University, KCC transfer students in Agriculture Science routinely out perform their OSU counterparts. While this feedback is anecdotal, it is very consistent. There is an effort underway to get quantifiable data on transfer students from OHEC and OUS.

4A.II.2 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF PLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

As a result of Advisory Committee input to the PLOs, students are now afforded more “hands on” learning opportunities in all of their Agriculture classes.

4B. STUDENT SUCCESS

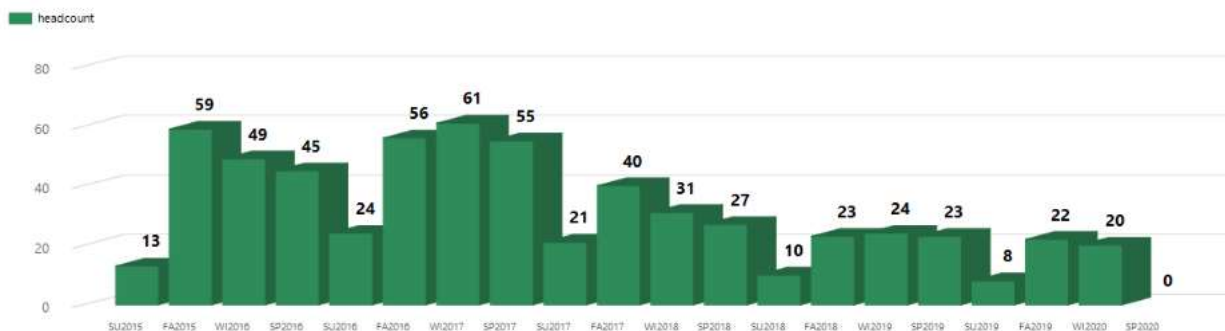
4B.I. DESCRIBE ENROLLMENT TRENDS AND PLANS TO ADDRESS THEM.

https://info.klamathcc.edu/IR/_layouts/15/ReportServer/RSViewerPage.aspx?rv:RelativeReportUrl=/IR/Reports/Dashboards/5%20Year%20Comparison%20%20bar%20graph%20chronological.rdl

5 Year Headcount Comparison

Academic Year	Term Year	Headcount
AY 2015-16	Total	166
AY 2016-17	Total	196
AY 2017-18	Total	119
AY 2018-19	Total	80
AY 2019-20	Total	50
Total		611

Klamath Community College Instructional Program Review:



4B.II. DESCRIBE DEGREE AWARDED TRENDS AND PLANS TO ADDRESS THEM.

<https://info.klamathcc.edu/IR/ layouts/15/ReportServer/RSViewerPage.aspx?rv:RelativeReportUrl=/IR/Reports/Enrollment/Program%20Enrollment%20By%20Term.rdl>

2 year Agriculture AAS



4B.III. REVIEW TRANSFERABILITY OF PROGRAM.

Students in the Agriculture Science program enjoy excellent transferability to OSU, as long as they stay in the Agriculture Science major. Unfortunately, students occasionally switch majors when they get to OSU and as a result are required to take more courses than they would have.

4B.III.1 DESCRIBE TRANSFERABILITY FROM HIGH SCHOOL TO KCC TO OUS.

Because of the unique nature of the Statewide Program of Study for Agriculture, students from across the state, who are enrolled in an accredited Agriculture Science program, are well aligned with KCCs

Agriculture Science program. Further, many students come to us with Dual Credit on their transcripts. This is very useful for them, as it gives the advanced standing in the program.

KCCs Agriculture Science program has dual credit offerings all over the state of Oregon, and in Northern California too.

4B.III.2 HAS THIS CHANGED OVER THE LAST FIVE YEARS? IF SO, WHY? WHAT ARE THE IMPACTS ON STUDENTS AND THE PROGRAM?

Dual Credit offerings have increased over the last 5 years, in large part due to the efforts of Kelly Kline. She has organized the process for teachers at the High School level, and she has expanded our footprint in Northern California.

4C. STUDENT ENGAGEMENT AND SATISFACTION

4C.I. COURSE EVALUATIONS DATA AND ANALYSIS

https://mykcc.klamathcc.edu/ICS/Faculty_CRM/Course_Evaluations.jnz

See the Appendix

4C.I.1 DESCRIBE CHANGES MADE IN INSTRUCTIONAL METHODS BASED ON STUDENT COURSE EVALUATION DATA. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Student Course Evaluation data are largely positive. The instructor however continues to try new ways to engage students.

4C.I.2 DESCRIBE CHANGES MADE TO THE COURSE BASED ON STUDENT COURSE EVALUATION DATA.

4C.II JOB PLACEMENT DATA AND ANALYSIS (IF AVAILABLE)

The only data available at this time is anecdotal, and based on personal contact with program graduates. It seems that about 9% of graduates are self-employed in Agriculture, about 50% are pursuing additional education (B.S., M.S., or PhDs). Most of the others are working in Agriculture for someone else, and about 10% are working in a field that is not Agriculture.

5. BUDGET

5A. PROVIDE FIVE-YEAR COST MARGIN DATA AND ANALYSIS.

	AGR			
	2015-16	2016-17	2017-18	2018-19
CREDIT_INST_LOAD	32.75	50.75	57.25	
CE_INST_LOAD	0	0	0	
OVERSIZE	0	0	0	

Lecture Credits	34	86	60	
Lab Credits	4	10	15	
Combined For. Cr.	18	9	46	
FacilityFee	\$ 2,646.00	\$ 3,546.00	\$ 4,132.80	\$ 2,805.60
Tuition	\$ 39,829.50	\$ 53,519.50	\$ 62,728.00	\$ 40,809.00
TechnologyFee	\$ 1,764.00	\$ 2,364.00	\$ 4,016.00	\$ 2,672.00
CourseFee	\$ 855.00	\$ 2,120.00	\$ 1,615.00	\$ 800.00
DistanceFee	\$ -	\$ -	\$ -	
StudentGovtFee	\$ 1,102.50	\$ 1,477.50	\$ 1,255.00	\$ 835.00
TotalTuitionFees	\$ 46,197.00	\$ 63,027.00	\$ 74,383.50	
Reimbursable_FTE	17.750813	25.601722	27.844862	10.12
Headcount	215	328	344	114
ADJPay	\$ 2,158.77	\$ 5,100.53	\$ 6,468.55	
FTP Pay	\$ 61,311.49	\$ 89,708.29	\$ 92,976.30	
CEPay	\$ -	\$ -	\$ 173.44	
TotalPay	\$ 63,470.25	\$ 94,808.83	\$ 99,618.29	\$ 67,597.68
PayPerCreditLoad	1938.023023	1868.154217	1740.057429	
Margin	\$ (23,640.75)	\$ (41,289.33)	\$ (36,890.29)	\$ (26,788.68)
	-59%	-77%	-59%	-66%

5B. SUMMARIZE PREVIOUS ANNUAL PROGRAM VIABILITY STUDY RESULTS AND EXPLAIN HOW CHANGES IMPACTED STUDENT LEARNING OUTCOME PROFICIENCY. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

The previous Program Viability Study pointed squarely at the need for improved recruitment. So far we have not had any startlingly positive response. It is the Program Lead's view that resumed and focused recruitment activities will pay off in the post COVID-19 era.

5C. EXPLAIN ANY BUDGETARY CHALLENGES AND ANY PLANS TO ADDRESS THEM.

The budget for the Agriculture Science program has been lean for the last few years. The program needs to make an investment to be able to teach Artificial Insemination. Doing so would expand the use of the existing tool that we have, and attract new students. The Program Lead has been seeking outside funding, and intends to continue to do so. Some funds had been committed to the program by community members, with the current looming economic disaster, new sources of funding will need to be secured.

6. CONCLUSION

6A. DESCRIBE PROGRAM STRENGTHS.

This program gives a student a diverse set of skills that are necessary to become a successful Agricultural entrepreneur, Agriculture manager, or student in a four-year program. This is achieved through a unique blend of practical hands-on skills, and theoretical knowledge of how systems function. Additionally, students gain critical communication, and information systems knowledge that are requirements in the 21st century work environment.

This program emphasizes the importance of entrepreneurship. Students who choose to start their own farms or other Agriculture businesses have a broad knowledge of the industry. They are also aware of local institutions that make loans for new and beginning farmers. Further they have experience filling out the forms, and have met the individual local loan officers.

The curriculum has a heavy concentration of sciences, particularly Biology and Chemistry. These courses lay the foundation for Students to begin to learn about modern Agriculture. Our Curriculum is very closely aligned with Oregon State University's. Students can take 120 credits at KCC and finish the remaining 60 credits online from Klamath Falls, enabling them to complete their BS in Agriculture Science without leaving Klamath Falls. This affords the student an opportunity to save a significant amount of money, when compared to leaving the Basin and moving to Corvallis.

This program is also closely aligned with the State and National Standards for Agriculture and Natural Resource Education K-16. This makes it easy for High Schools throughout the region to offer dual credit with KCC.

KCC faculty have also been members of the team writing the Statewide Program of Study for Agriculture. The Statewide Program of Study has offered a consistency of curriculum across Oregon, further facilitating alignment and articulation. This has enabled Agriculture Programs to maintain their Carl D. Perkins grant eligibility. It has also had a very positive effect on KCC's Perkins status, because Agriculture is one of the primary Career Clusters as defined by the Carl D. Perkins Act.

We are one of the only Community Colleges with zero credit loss when students transfer to OSU, assuming that they stay in the Agriculture Science program at OSU. This is particularly significant for our Biology and Chemistry courses, as we are the only ones with a straight across transfer for those classes.

Our Collegiate Farm Bureau club is one of only two in Oregon and was the first one in the Pacific Northwest. It has been held up by the National Farm Bureau Federation as an example for others to emulate. Students have the opportunity to travel and compete at the State and National levels. For the last two years, we have had students place in the top 10 nationally, in the Ag Issues Debates.

6B. DESCRIBE PROGRAM WEAKNESSES.

One of the ongoing challenges for this program is recruiting. As you can see from the graph in section 4.B.1, enrolment has been steadily slipping. This has been a source of frustration for the last 2 years. During both of those years we had a plan, but were unable to implement it (this year because of the COVID-19 crisis).

As with any relationship, our relationship with OSU would benefit from some attention. KCC's Agriculture faculty have had fewer opportunities to travel in recent years. This has become more of an issue in the last two years, due to the turn over in leadership at OSU.

6C. DESCRIBE SUPPORT NEEDED.

While we have some pretty nifty technology in the Agriculture program, support in terms of training and licensing has been a shortfall. Currently, our Agriculture Faculty needs to get a commercial UAV license. Said Faculty member would also benefit from additional training with Ultrasound imaging.

There is a current local need for AI (Artificial Insemination) Technicians. We are not yet in a position to address this need. I had some outside funding lined up to address this issue, but in the wake of this years ...issues, I will have to start looking over again.

6D. CREATE NEW GOALS AND LINK THEM TO THE STRATEGIC PLAN.

Goal 1. Improve recruitment with marketing results data.

Goal 2. Increase graduation rates from Ag program

Goal 3. Increase employability of KCC Ag students

8. APPENDICES



Occupation Profiles

The ~~Occupation Profiles~~ tool is located on ~~QualityInfo.org~~, a website of the ~~Oregon Employment Department~~.

Agricultural and Food Science Technicians (194011)

Oregon (All Counties)

DESCRIPTION

Work with agricultural and food scientists in food, fiber, and animal research, production, and processing; and assist with animal breeding and nutrition. Conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects. Includes technicians who assist food scientists or technologists in the research and development of production technology, quality control, packaging, processing, and use of foods.

JOB OPENINGS LISTED WITH THE OREGON EMPLOYMENT DEPARTMENT FOR AGRICULTURAL AND FOOD SCIENCE TECHNICIANS

Current job listings for this occupation: 6. Included: Openings 1 through 6.

Job Title	Date Posted	Location	Wage Offered
Field Agronomy Technician (Jefferson, OR)	01/31/2020	Jefferson	DOE
Intern	01/17/2020	Dundee	DOE, Neg.
P03489UF - Faculty Research Assistant	01/03/2020	Madras	DOE
Quality Control Supervisor	11/06/2019	Klamath Falls	DOE
Lab Analyst	11/06/2019	Klamath Falls	DOE
Field Scout - Tangent, OR	11/06/2019	Tangent	DOE

Job Openings from Other Websites

for Agricultural and Food Science Technicians

The following job openings have been automatically extracted from various sites across the Web. Oregon Employment Department cannot validate these openings nor endorse any of these external sites. Some of these jobs may no longer be open. In some cases, a single opening may be posted on multiple sites.

Total openings from other websites: 3. Included: Openings 1 through 3.

Job Title	Date Posted	Location	Wage Offered
Crop Consultant In , Careers At O	02/03/2020	Tangent	
Test - Do Not	01/31/2020	Downtown	
Control Point To Point Wirer	01/29/2020	Wilsonville	

State of Oregon Licenses and Certifications

for Agricultural and Food Science Technicians

No statewide license is required for this occupation.

WAGE RANGE

for Agricultural and Food Science Technicians

Area	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile	Average Hourly	Average Annual
Oregon	\$15.59	\$17.32	\$20.04	\$23.96	\$28.94	\$21.06	\$43,816
Clackamas	15.05	16.64	18.42	20.34	23.53	18.55	38,578
Columbia Basin	16.47	18.19	21.16	25.45	28.91	21.73	45,194
Columbia Gorge	15.80	17.11	19.28	22.37	24.30	19.60	40,763
East Cascades	16.02	17.65	20.20	22.82	24.40	20.47	42,588
Eastern Oregon	16.45	18.11	21.00	24.66	28.87	21.64	45,009
Eastern Six	16.41	17.97	20.79	23.83	28.68	21.48	44,684
Lane	16.14	17.31	19.26	22.33	24.30	19.74	41,054
Mid-Valley	12.36	16.68	19.92	23.51	27.44	19.97	41,544

February 4, 2020

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WAGE RANGE

for Agricultural and Food Science Technicians

Area	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile	Average Hourly	Average Annual
Portland Tri-County	15.17	16.58	18.44	22.12	27.18	19.60	40,762
Portland-Metro	15.19	16.57	18.44	22.59	27.95	19.79	41,161

EMPLOYMENT OUTLOOK

for Agricultural and Food Science Technicians

Statewide Employment Analysis	<p>Employment in this occupation in 2017 was similar to most occupations across the state. The total number of job openings is projected to be similar to job openings for most occupations in Oregon through 2027. This occupation is expected to grow at about the statewide average growth rate for all occupations through 2027.</p> <p>Reasonable employment opportunities exist.</p>
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AREA EMPLOYMENT PROJECTIONS

for Agricultural and Food Science Technicians

Replacement openings are caused by existing workers permanently leaving their occupation. Many additional job openings occur due to job changes within occupations.

Area	2017 Employment	2027 Employment	Percent Change	Annual Change Openings	Annual Replacement Openings	Total Annual Openings
Oregon	760	871	14.6%	11	81	92
Columbia Gorge	49	58	18.4%	1	6	7
East Cascades	61	73	19.7%	1	7	8
Lane	26	30	15.4%	0	3	3
Mid-Valley	228	266	16.7%	4	25	29
Northwest Oregon	136	141	3.7%	0	14	14
Portland Tri-County	287	327	13.9%	4	30	34
Rogue Valley	1	1	0.0%	0	0	0

INDUSTRIES OF EMPLOYMENT

for Agricultural and Food Science Technicians

Industry	Ownership	2017 Employment
Total All Industries	All	760
Agriculture, Forestry, Fishing and Hunting	Private	88
Crop Production	Private	68
Vegetable and Melon Farming	Private	17
Greenhouse, Nursery, and Floriculture Production	Private	48
Support Activities for Agriculture and Forestry	Private	16
Manufacturing	Private	341
Food Manufacturing	Private	312
Fruit and Vegetable Preserving and Specialty Food Manufacturing	Private	217
Professional, Scientific, and Technical Services	Private	132
Scientific Research and Development Services	Private	83

EDUCATIONAL REQUIREMENTS

for Agricultural and Food Science Technicians

The typical entry level education for this occupation is a associate's degree.

KNOWLEDGE

for Agricultural and Food Science Technicians

Examples of the knowledge needed for success in this occupation is listed below, in order of importance. This information comes from the Occupational Information Network (O*NET).

- **Mathematics:** Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- **Biology:** Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- **Chemistry:** Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
- **Administration and Management:** Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
- **English Language:** Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- **Clerical:** Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.
- **Computers and Electronics:** Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- **Education and Training:** Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
- **Geography:** Knowledge of principles and methods for describing the features of land, sea, and air masses, including their physical characteristics, locations, interrelationships, and distribution of plant, animal, and human life.

SKILLS

for Agricultural and Food Science Technicians

Examples of the skills needed for success in this occupation are listed below, in order of importance. This information comes from the Occupational Information Network (O*NET).

- **Reading Comprehension:** Reading work-related information.

ABILITIES

for Agricultural and Food Science Technicians

Examples of the abilities needed for success in this occupation are listed below, in order of importance. This information comes from the Occupational Information Network (O*NET).

- **Written Comprehension:** Reading and understanding what is written.
 - **Written Expression:** Communicating by writing.
 - **Information Ordering:** Ordering or arranging things.
 - **Near Vision:** Seeing details up close.
 - **Oral Comprehension:** Listening and understanding what people say.
 - **Oral Expression:** Communicating by speaking.
 - **Problem Sensitivity:** Noticing when problems happen.
-

DETAILED WORK ACTIVITIES

for Agricultural and Food Science Technicians

Examples of the detailed work activities involved with this occupation are listed below, in order of importance. This information comes from the Occupational Information Network (O*NET).

- Record research or operational data.
- Evaluate quality of materials or products.
- Prepare scientific or technical reports or presentations.
- Clean objects. • Cultivate land.
- Analyze chemical compounds or substances.
- Set up laboratory or field equipment.
- Prepare biological samples for testing or analysis.
- Research methods to improve food products.
- Examine characteristics or behavior of living organisms.
- Collect biological specimens.
- Manage agricultural or forestry operations.
- Supervise scientific or technical personnel.
- Train personnel in technical or scientific procedures.
- Research diseases or parasites.
- Maintain laboratory or technical equipment.
- Manage scientific or technical project resources.
- Operate laboratory or field equipment.
- Test quality of materials or finished products.
- Care for plants or animals.
- Develop sustainable industrial or development methods.
- Provide technical information or assistance to public.
- Prepare compounds or solutions for products or testing.
- Research crop management methods.
- Research sustainable agricultural processes or practices.

SCHOOLS AND TRAINING PROVIDERS

for Agricultural and Food Science Technicians

The training providers listed below offer programs related to this occupation. This information is updated once per year. Anyone interested in a particular program should check with the training institution regarding its availability. Listing these training providers does not necessarily constitute or imply their endorsement, recommendation, or favoring by the State of Oregon.

School	City	Programs of Training and 2016 Graduates		
Linn-Benton Community College	Albany	Food Technology and Processing	Associate Degree	2

Career Pathways

for Agricultural and Food Science Technicians

These Oregon community colleges have defined career

pathway roadmaps to facilitate entry into this occupation.

Community College	Pathway
Clackamas Community College	Horticulture
Klamath Community College	Agriculture & Natural Resources Systems
Linn-Benton Community College	Agriculture Crop Production
Tillamook Bay Community College	Agriculture and Natural Resources
Treasure Valley Community College	Horse Production - Horse Training Business Specialist NO LONGER OFFERED Horse Production - Horse Training Philosophy Technician NO LONGER OFFERED Ranch Management: Ranch Animal Technician Horse Production-Performance Horse Selection & Training Technician

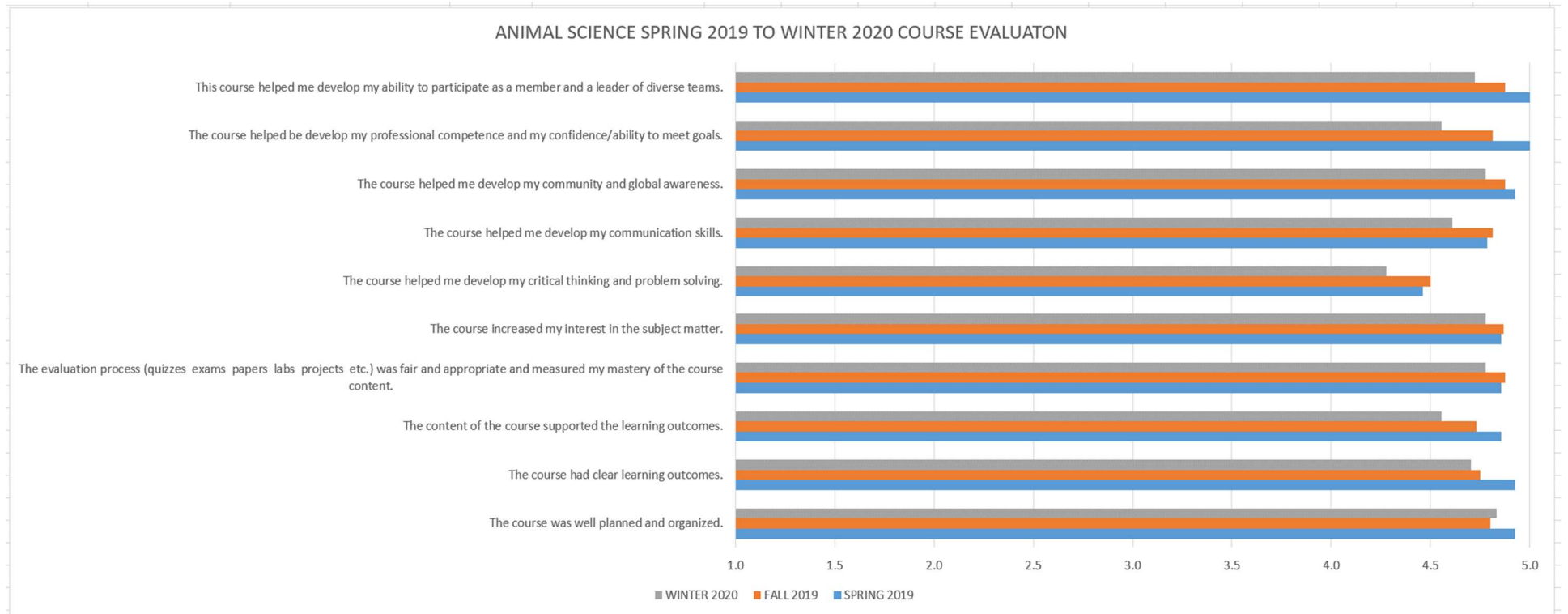
Related Occupations

for Agricultural and Food Science Technicians

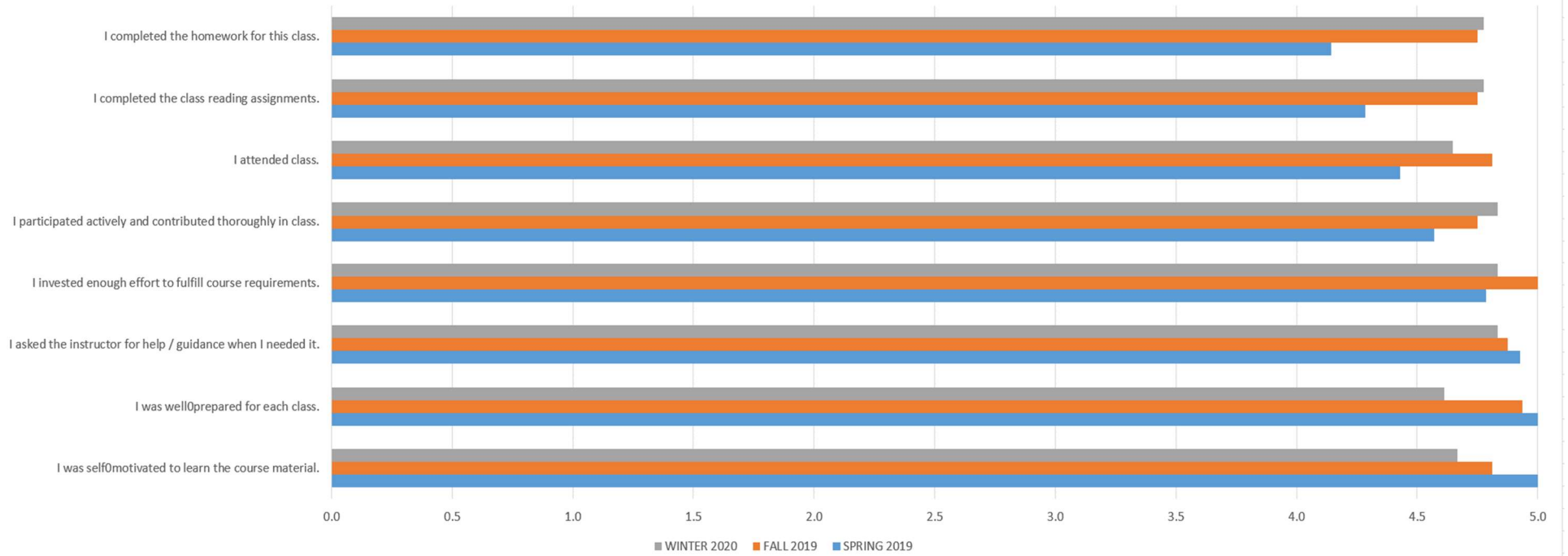
Occupations related to Agricultural and Food Science Technicians are listed below. This information comes from the Occupational Information Network (O*NET).

Related Occupations are not available for this occupation.

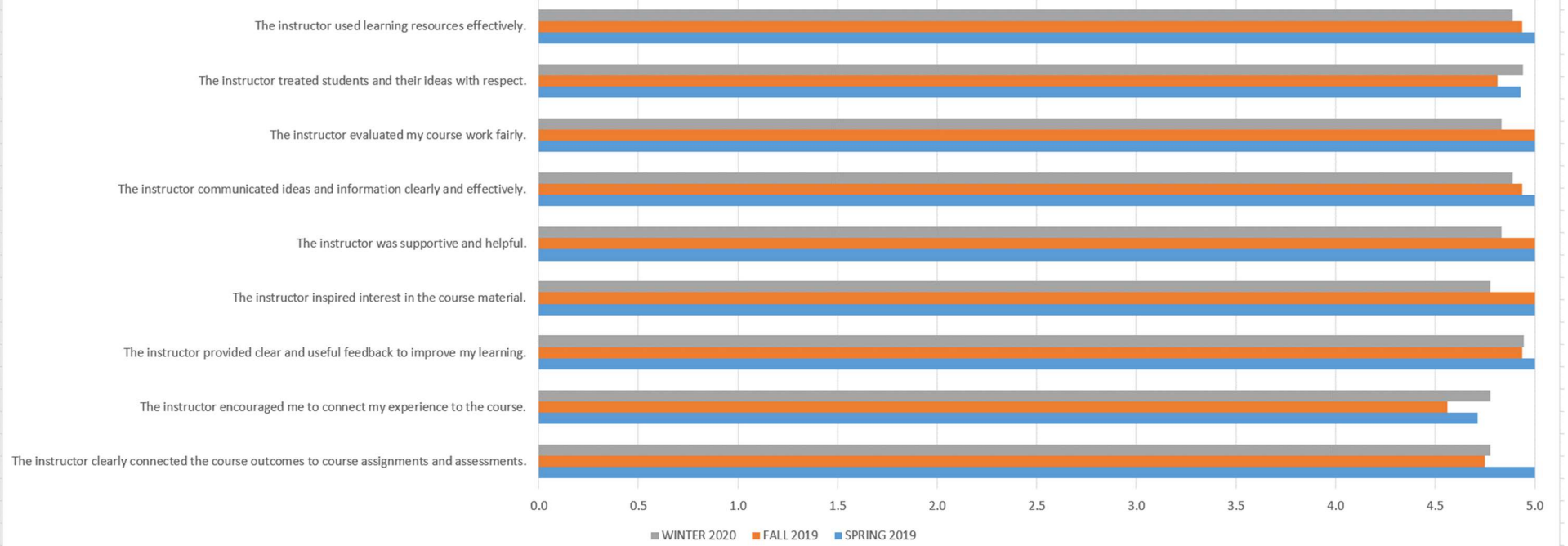
COURSE EVALUATIONS BY STUDENTS



ANIMAL SCIENCE SPRING 2019 TO WINTER 2020 STUDENT SELF-EVALUATION



ANIMAL SCIENCE SPIRNG 2019 TO WINTER 2020 TEACHER EVALUATION



INSTRUCTIONAL PROGRAM REVIEW RUBRIC

	Highly Developed	Developed	Emerging	Initial
1—Accomplishments in Achieving Goals	Exhibits ongoing and systematic evidence of goal achievement.	Exhibits evidence of goal achievement.	Exhibits some evidence that some goals have been achieved.	Minimal evidence that progress has been made toward achieving goals..
2—Labor Market Projection	Thoroughly explains projected market demand and potential effects on program; presents highly developed plan to address projection.	Explains projected market demand and discusses several possible actions to address projection.	Minimally explains projected market demand and lists one or two actions to address projection.	Presents labor market demand without analysis/explanation and fails to list possible actions to address projection.
3—Resources				
Professional Development	Exhibits ongoing and systematic support of professional development opportunities.	Exhibits support of regular professional development opportunities.	Evidence of intermittent professional development opportunities.	Minimal evidence of professional development opportunities.
Faculty Meeting Instructional Needs	Employs a sufficient number of highly qualified faculty to meet instructional needs.	Employs an adequate number of qualified faculty to meet instructional needs.	Has a plan to employ an adequate number of qualified faculty to meet instructional needs.	Faculty numbers and/or qualifications are insufficient to meet instructional needs.
Facilities and Equipment	Facilities and resources meet current and future needs.	Facilities and resources meet current needs.	Evidence of a plan to have facilities and resources meet current and future needs.	Minimal evidence that facilities and resources meet current and future needs.
4—Effectiveness				
Student Learning Outcomes Assessment	Exhibits ongoing and systematic SLO assessment to adjust instruction.	Exhibits student learning outcomes assessment and uses results to change instruction.	Has a plan to engage in ongoing and systematic SLO assessment, including using results to change instruction.	Minimal evidence of SLO assessment.

Student Success	Thoroughly analyzes trends in enrollment, degrees awarded, time-to-completion rates, and formulates comprehensive plans to address them.	Describes trends in enrollment, degrees awarded, time-to-completion rates, and formulates plans to address them.	Describes trends in enrollment, degrees awarded, time-to-completion rates, and makes an attempt to plan to address them.	Minimal description of trends and/or fails to formulate plan to address them.
5—Budget	Financial resources meet current needs and are projected to meet future needs.	Financial resources meet current needs.	Evidence of a plan to acquire financial resources to meet current needs.	Minimal evidence that financial resources meet current needs.
6—Strengths and Weaknesses	Strengths and weaknesses are described accurately and thoroughly.	Most strengths and weaknesses are described accurately and thoroughly.	Some strengths and weaknesses are described accurately and thoroughly.	Minimal evidence that strengths and weaknesses are described accurately and thoroughly.
7—New Goals and Plan	Multiyear planning process with evidence of use of assessment data in planning.	Multiyear planning process with some assessment data.	Short-term planning process recently implemented.	Minimal evidence of planning process.
8—Overall Evaluation	Evidence of ongoing systematic use of planning in selection of programs and services.	Exhibits evidence that planning guides program and services selection that supports the college.	There is evidence that planning intermittently informs some selection of services to support the college.	Minimal evidence that plans inform selection the of services to support the college.
	Highly Developed	Developed	Emerging	Initial