New Program Request Form

Precision Agriculture - Associate of Applied Science Degree

Certificate A in Precision Agriculture
Certificate B in Precision Agriculture
Certificate C in Precision Agriculture

Prepared for:
Kansas Board of Regents

Submitted by:
Cowley College
125 S. Second Street
Arkansas City, KS 67005
February 2022

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New Program Request Form
CA1

General Information

Institution submitting proposal	Cowley College
Name, title, phone, and email of person submitting the application *(contact person for the approval process)*	Buddy Curry Department Chair CTE/Director of Agriculture 620 441 6560 Buddy.curry@cowley.edu
Identify the person responsible for oversight of the proposed program	Buddy Curry
Title of proposed program	Precision Agriculture
Proposed suggested Classification of Instructional Program (CIP) Code	01.0301 Agricultural Production Operations, General
CIP code description	A program that focuses on general planning, economics, and use of facilities, natural resources, equipment, labor, and capital to produce plant and animal products, and that may prepare individuals for work in farming, ranching and agribusiness.
Standard Occupation Code (SOC) associated to the proposed program	19-4012.01
SOC description	Apply geospatial technologies, including geographic information systems (GIS) and Global Positioning System (GPS), to agricultural production or management activities, such as pest scouting, site-specific pesticide application, yield mapping, or variable-rate irrigation. May use computers to develop or analyze maps or remote sensing images to compare physical topography with data on soils, fertilizer, pests, or weather.
Number of credits for the degree and all certificates requested	65 – AAS, 18 - Cert A, 34 – Cert B, 50 – Cert C
Proposed Date of Initiation	08/01/2022
Specialty program accrediting agency	none
Industry certification	none

Signature of College Official_ *Michelle Schoon* _____   Date_2/23/2022____

Signature of KBOR Official_____ Date_____

Narrative

Completely address each one of the following items for new program requests. Provide any pertinent supporting documents in the form of appendices, (i.e., minutes of meetings, industry support letters, CA1-1a form).

**Institutions requesting subordinate credentials need only submit the items in blue. For example, an institution with an approved AAS degree has determined a need for a Certificate C in the same CIP code using the same courses used in the AAS degree program.

Program Rationale
- Provide an overall explanation and background surrounding the development of the proposed program. Include where the idea came from, who was involved, and why the program is needed.
  - The Precision Agriculture AAS Degree idea was brought to the Agriculture Advisory Board in the Spring of 2019. The Advisory board visited with area farmers and area Cooperatives about the need of such a program in the area of Southcentral Kansas. The concept was well received. The justification is the shortage of individuals that have the capability running precision machinery, and making any adjustment or aid in the installation of such equipment. With this in mind, the Agriculture Program developed an AAS degree with three Certificates to meet the need. Survey results of high school students in the Cowley College service area indicated that agriculture as the second highest need for area of interest.

Program Description
- Provide a complete catalog description (including program objectives) for the proposed program.
  - The Precision Agriculture Program offers opportunities to study current and emerging technologies associated with modern agriculture. The student will study the basic principles of GIS and GPS that are applied to site-specific management of production agriculture. The student will be introduced to the tools, hardware, and software needed to be successful in today's agriculture.
- List and describe the admission <u>and</u> graduation requirements for the proposed program.
  - The admissions and graduation requirements are the same for this program as other programs at the College. (See Policy below). This program will be offered to students at the high school and college level. For dual-credit students, they will have to meet the current requirements for high-school dual-credit enrollment. Some of the courses are sequential and have prerequisites listed on the course procedures. Upon the successful completion of the courses required for the certificate, and/or the courses outlined in the degree program and meeting all the KBOR requirements, students will be awarded an Associate of Applied Science Degree and/or applicable level vocational Certificate.

    250.00 ADMISSION POLICY
    Admission to Cowley County Community College is open to all individuals who can academically benefit from its educational programs.
    Before full admission can be granted, students must provide the following:
    1. high school diploma or GED certificate.
    2. transcripts from all colleges previously attended.
    3. assessment scores or ACT scores demonstrating an ability to benefit from college level coursework.
    Cowley College reserves the right to deny a student admission or readmission if it is determined to be in the best interests of the college community to do so, or if the college is unable to provide the services, courses or program(s) needed to assist the student in meeting educational objectives.
    Provisional Admission

Applicants may be provisionally admitted for a maximum of 12 credit hours pending submission of the required documents.

Ability to benefit: Students who do not meet the ability to benefit guidelines will be admitted on a provisional basis, pending satisfactory progress in the essential skills curriculum. These students may enroll in a maximum of 13 credit hours and must earn a semester GPA of 2.0 to be eligible for continued enrollment.

Guest Students

Students of other colleges and universities and other applicants not seeking a degree from Cowley may be admitted as guest students. Guest students may earn a maximum of 12 credit hours. To enroll in additional hours, the student must first be fully admitted by providing the documents listed above. Guest students who have completed a degree will be exempt from the credit hour limit. Students in this category are considered non-degree seeking and will not declare a major.

High School and Gifted Students

Students who have not received a high school diploma and are currently enrolled as a high school sophomore, junior, or senior may obtain special student status and be admitted to the College if they meet minimum grade point and assessment requirements and obtain written authorization from the school principal. Freshmen who are gifted and the IEP documents their ability to benefit from college coursework or have been accepted for enrollment at an eligible postsecondary educational institution, may also obtain special student status and be admitted to the College if they meet minimum grade point and assessment requirements and obtain written authorization from the school principal.

International Students

Cowley welcomes students who are citizens of other nations and are able to meet admissions and U.S. Citizenship and Immigration Services (USCIS) requirements.

o Graduation requirements are the same for this program as other programs at the College as outlined in the following policy.

216.00 GRADUATION REQUIREMENTS

Cowley College awards the Associate of Arts, Associate of Science, Associate of Fine Arts, Associate of General Studies, and the Associate of Applied Science degrees, as well as the College Certificate. Associate degrees require successful completion of a minimum of 62 credit hours, documentation of high school graduation or GED, and fulfillment of the General Education requirements.

A minimum 2.0 grade point average at Cowley College and a cumulative 2.0 grade point average including transfer course work applied is required for all associate degrees and certificates. Official transcripts of high school graduation or GED and any other college transcripts to be applied toward a degree must be on file in the Registrar's Office prior to issuance of a diploma.

Students completing a degree or certificate will need to complete a Degree Application and submit it to the Registrar's Office according to the published deadlines for submission.

Students who fail to file the Degree Application by the deadline may request to graduate in a subsequent semester if requirements are met. Students will be awarded a diploma or certificate upon successful completion of the degree or certificate requirements. The diploma or certificate will be issued at the end of each semester. Commencement will be held at least once a year. Students who are within 9 hours or less to fulfill graduation requirements and who plan to complete their coursework during the summer term may participate in the graduation program in May of that academic year.

The associate degree requires 15 credit hours earned in residence at Cowley College. Credit for prior learning, or other non-graded hours awarded by Cowley College, will not count toward satisfying residence hours. Developmental courses cannot be used to fulfill degree requirements.

If a student does not maintain continuous enrollment (excludes summer), the student will be required to follow the graduation requirements that are in effect at the time of re-enrollment.

Demand for the Program

- Using the Kansas Department of Labor's Long Term Occupational Outlook, (https://klic.dol.ks.gov) identify employment trends and projections: occupational growth, occupational replacement rates, estimated annual median wages, and typical education level needed for entry.

Occupational Code	Occupational title	2018	2028	Numerical Change	Percent Change	Annual median wage	Ed level
11-9013	Farmers, Ranchers, & Other managers	8,423	9,142	719	8.5	***	HS Diploma & 5yrs Exp
19-1013	Soil & Plant Scientist	367	406	39	10.6%	57,600	BS

- Show demand from the local community. Provide letters of support from at least three potential employers, which state the specific type of support they will provide to the proposed program.
  - *See Attachment A*
- Describe how the proposed program supports the Perkins Comprehensive Local Needs Assessment.
  - According to the most recent Perkins Comprehensive Local Needs Assessment, Precision Agriculture had 944 annual openings with an average wage of 61.061. The demand is strong for this program.
- Describe/explain any business/industry partnerships specific to the proposed program.
  If a formal partnership agreement exists, agreement explaining the relationship between partners and to document support to be provided for the proposed program must be submitted to the Board office independently of the CA1 materials for review purposes. The agreement will not be published or posted during the comment period.
  While no formal business partnerships have been developed, the advisory council industry partners are very supportive. The Cowley College service area in a high-agriculture area and in a survey of over 1,000 area high school, 22% of the students indicated Agriculture as a career interest.

Duplication of Existing Programs

- Identify similar programs in the state based on CIP code, title, and/or content. For each similar program provide the most recent K-TIP data: name of institution, program title, number of declared majors, number of program graduates, number of graduates exiting the system and employed, and annual median wage for graduates existing the system and employed.

School	Academic Discipline	Program Name	Award	CIP Code	Declared Majors	Total Grads	Grads Employed	Annual median wage
Cloud CCC	Agriculture, Food & Natural Resources	Agricultural Production Operation, General	Assoc/Cert	1.0301	37	5	*	*
Garden City CC	Agriculture, Food & Natural Resources	Agricultural Production Operation, General	Assoc/Cert	1.0301	29	5	*	*
Highland CC	Agriculture, Food & Natural Resources	Agroecology and Sustainable Agriculture	Assoc/Cert	01.0308	26	5	*	*

Johnson CCC	Agriculture, Food & Natural Resources	Agroecology and Sustainable Agriculture	Assoc/Cert	01.0308	18	5	*	27,876
Northwest Kansas Technical College	Agriculture, Food & Natural Resources	Agroecology and Sustainable Agriculture	Assoc/Cert	01.0308	33	17	11	30,769

- Was collaboration with similar programs pursued:
  - Please explain the collaboration attempt or rationale for why collaboration was not a viable option.
    - No formal collaboration was made with the schools listed. A few minor questions were asked, but the mainstay of the program was designed to directly affect our service area of Southcentral Kansas. The service areas of the above schools have slightly different farming situations that play into their decision-making. The Ag department spent more time working with the farmers and precision ag providers in the area to design the program to fit to our needs for Southcentral Kansas.

Program Information

- List by prefix, number, title, and description all courses (including prerequisites) to be required or elective in the proposed program.

AGR1211 Agriculture Orientation (1) LEC
Description:
This course is an orientation to curriculum and career opportunities in the Agriculture Industry. Emphasis will be on career planning as related to a chosen profession and agricultural community. The development of the agriculture industry will also be included as it pertains to career opportunities.

AGR1201 Introduction to Precision Agriculture (3) LEC
Description:
This course approaches the education of students from a practical, real world approach to what precision agriculture is and how it affects production and the agricultural industry. Students will be introduced to the concepts, theories, operations, tools, applications, GIS, GPS, and basic principles of electronic equipment.

AGR1262 Crop Production & Management (4) LEC/LAB
Description:
A course designed to introduce students to applied crop production and the management techniques utilized in the production of domesticated crops used for human consumption and clothing.

AGR1280 Soils For Production (3) LEC
Description:
This course includes the basic chemical, physical and biological properties of soils as well as its formation, fertility and usage.

AGR1263 Cotton Production (4) LEC/LAB
Description:
Introduce students to cotton production in Southern Kansas. Information covered are as follows; Soil preparation, growth stages, pest types and controls, nutritional needs, harvesting, and items provided by cotton to humans and livestock.

AGR1265 Weed Science (3) LEC
Description:
An introduction to different techniques used to control weed growth and destruction in farming operations.

AGR1260 Applied Entomology & Pest Management (3) LEC
Description:
This course enriches a student knowledge of insects and closely related arthropods to the effects they have on agriculture. The following will be included; classification of insects, behaviors and tendencies, relationship and importance to animals and plant economics, and steps in control.

AGR1204 Precision Agriculture Systems (3) LEC
Description:

This course provides an overview of precision farming concepts as it applies to various aspects of production in both a site specific and production as a whole. Students will receive instruction in electronic equipment, tools, their uses and their effect on economic and environmental benefits on a variety of agricultural systems.

AGR1259 Crop Inspection & Management Techniques (3) LEC
A course designed to introduce students to crop advisement. The student will be instructed on proper technique used in examination of a field, how to give advice on proper management techniques and advise on needed inputs to maximize production.

AGR1200 GPS & GIS (3) LEC
This course approaches the education of students in the application, function and proper handling of GIS (Geographic Information System), GPS (Global Positioning System) and the use of satellites in the management of a precision farming operation.

AGR1202 Precision Hardware & Software System (3) LEC
This course is designed to introduce and allow for a working knowledge of the hardware systems used in precision and the software needed to make the system work to provide data to make production decisions.

AGR1207 Data Collection & Interpretation (3) LEC
This course is designed to introduce students to data. Students will perform data mining, data analysis, compile reports and interpret the results to make production and management decisions.

AGR1206 Ag Electrical & Electronics (3) LEC
This course is designed to introduce students to electricity and electronics used in farm equipment. Students will perform basic installation, running of equipment and troubleshooting of the electrical and electronic systems on farm equipment.

AGR1261 Agriculture Chemicals & Fertilizer (3) LEC
A course in the usage of pesticides, herbicides and fertilizers in agriculture. Students will be introduced to the characteristics of pesticides, herbicides, and their usage along with the calibration of equipment. The next part of the course will examine fertilizer types, usage, handling, and calibration of equipment.

AGR1205 Ag Aerial Systems (3) LEC
This course is designed to introduce students to Aerial Systems used in the agricultural production. Students will perform basic maintenance, operate aerial equipment, reading and organizing collected data.

AGR1203 Remote Sensing, Mapping & Management (3) LEC
This course is designed to introduce students to remote sensing, mapping and management of the systems and operation. Students will be provided with concepts and methods of remote sensing, image analysis, and mapping to aid in monitoring and management of natural resources, environmental concerns and land use.

AGR1248 Agricultural Work Experience I (1) INTERNSHIP
The purpose of this course is to give the student work experience necessary for the student to gain a job in his elected area of interest. This will be done by the student finding an internship with a company, local farmer, or through the Cowley Agriculture program, with the mentorship of the instructor.

AGR1277 Agricultural Work Experience II (1) INTERNSHIP
The purpose of this course is to give the student work experience necessary for the student to gain a job in his elected area of interest. This will be done by the student finding an internship with a company, local

farmer, or through the Cowley Agriculture program, with the mentorship of the instructor. This is an internship course.

AGR1213 Ag Computation (3) LEC
Using basic mathematics, statistical interpretations, formulas, measurements, and basic algebra a student will use spread sheets and data analysis (e.g. MS Excel) to support agribusiness management decisions in a wide range of agriculture situations to increase understanding of problem solving and decision making.

AGR1230 Agriculture Economics (3) LEC
Agricultural economics applies the principles of economics to issues of agricultural production, natural resources, and farm development. Topics include product markets, farm production and market structure, global competition as well as international trade and government regulation.

AGR1269 Art of Oral Communications (3) LEC
This course adds the terminology that is used in the agriculture industry and aids the student in developing the fundamental skills needed for private and public speaking experiences; elements in voice production and improvement, bodily movement, confidence, poise, and understanding of all types of public speeches.

INR3760 Industrial Technical Writing (3) LEC
A course designed for the career and technical education student to understand and properly identify situations where different forms of documents are more appropriate than others. This course will discuss and review the importance of writing technically correct documents related to specific careers within industry. This course is designed for students to prepare and generate documents that could be utilized later as a guide in their career.

CIS1958 Network Plus (3) LEC
This course will prepare students for the CompTIA Network+ certification. The topics will include networking concepts, cabling, wireless networking, cloud computing, network risk management, unified communications, network segmentation/virtualization, wide area networks, and industrial/enterprise networking.

PHO6460 Ethics (3) LEC
A practical approach to recognizing, understanding and solving ethical problems confronting individuals in today's society. Basic concepts of applied ethical theories in moral philosophy and reasoning are examined using critical thinking and responsible decision-making skills.

- **If the proposed program includes multiple curricula (e.g., pathways, tracks, concentrations, emphases, options, specializations, etc.), identify courses unique to each alternative.**
  - None
- **Provide a Program of Study/Degree Plan for the proposed program including a semester-by-semester outline that delineates required and elective courses and notes each program exit point.**

COURSE NUMBER	COURSE NAME	SEMESTER			
PRECISION AGRICULTURE (Associate of Applied Science Degree)					
		1	2	3	4
GENERAL EDUCATION REQUIREMENTS					
Basic Skills (12 hours)					
PHO6460	Ethics				3
AGR1213	ARICULTURAL COMPUTATION				3
AGR1230	AGRICULTURE ECONOMICS (OR AG BUSINESS ELECTIVE)				3
AGR1269 OR INR3760	ART OF ORAL COMMUNICATIONS OR INDUSTRIAL TECHNICAL WRITING				3
Computer Literacy (3 hours)					
CIS1958	NETWORKING				3
GENERAL EDUCATION HOURS 15					15
TECHNICAL REQUIREMENTS					
AGR1211	AGRICULTURE ORIENTATION	1			
AGR1201	INTRODUCTION TO PRECISION AG	3			
AGR1262	CROP PRODUCTION & MANAGEMENT	4			
AGR1280	SOILS FOR PRODUCTION	3			
AGR1263	COTTON PRODUCTION	4			
AGR1265	WEED SCIENCE	3			
AGR1260	APPLIED ENTOMOLOGY AND PEST MANAGEMENT		3		
AGR1204	PRECISION AGRICULTURE SYSTEMS		3		
AGR1259	CROP INSPECTION & MANAGEMENT TECHNIQUES		3		
AGR1200	GLOBAL POSITIONING & GEOGRAPHICAL INFO SYSTEMS		3		
AGR1202	PRECISION HARDWARE & SOFTWARE SYSTEMS		3		
AGR1207	DATA: COLLECTION & INTERPRETATION			3	
AGR1206	AG ELECTRICAL & ELECTRONIC SYSTEMS			3	
AGR1261	AGRICULTURE CHEMICALS & FERTILIZERS			3	
AGR1205	AG AERIAL SYSTEMS			3	
AGR1203	REMOTE SENSING, MAPPING & MANAGEMENT			3	
INTERNSHIP					
AGR1248	AGRICULTURAL WORK EXPERIENCE I		1		
AGR1277	AGRICULTURAL WORK EXPERIENCE II			1	
TECHNICAL HOURS (50)		18	16	16	
TOTAL HOURS (65)		18	**16**	**16**	**15**

PRECISION AGRICULTURE (Certificate A)

COURSE NUMBER	COURSE NAME	SEMESTER			
		1	2	3	4
TECHNICAL REQUIREMENTS					
AGR1211	AGRICULTURE ORIENTATION	1			
AGR1201	INTRODUCTION TO PRECISION AG	3			
AGR1262	CROP PRODUCTION & MANAGEMENT	4			
AGR1280	SOILS FOR PRODUCTION	3			
AGR1263	COTTON PRODUCTION	4			
AGR1265	WEED SCIENCE	3			
TOTAL TECHNICAL HOURS (18)		18			

PRECISION AGRICULTURE (Certificate B)

COURSE NUMBER	COURSE NAME	SEMESTER			
		1	2	3	4
TECHNICAL REQUIREMENTS					
AGR1211	AGRICULTURE ORIENTATION	1			
AGR1201	INTRODUCTION TO PRECISION AG	3			
AGR1262	CROP PRODUCTION & MANAGEMENT	4			
AGR1280	SOILS FOR PRODUCTION	3			
AGR1263	COTTON PRODUCTION	4			
AGR1265	WEED SCIENCE	3			
AGR1260	APPLIED ENTOMOLOGY AND PEST MANAGEMENT		3		
AGR1204	PRECISION AGRICULTURE SYSTEMS		3		
AGR1259	CROP INSPECTION & MANAGEMENT TECHNIQUES		3		
AGR1200	GLOBAL POSITIONING & GEOGRAPHICAL INFO SYSTEMS		3		
AGR1202	PRECISION HARDWARE & SOFTWARE SYSTEMS		3		
INTERNSHIP					
AGR1248	AGRICULTURAL WORK EXPERIENCE I		1		
TOTAL TECHNICAL HOURS (34)		18	16		

COURSE NUMBER	COURSE NAME	SEMESTER			
		1	2	3	4
PRECISION AGRICULTURE (Certificate C)					
TECHNICAL REQUIREMENTS					
AGR1211	AGRICULTRE ORIENTATION	1			
AGR1201	INTRODUCTION TO PRECISION AG	3			
AGR1262	CROP PRODUCTION & MANAGEMENT	4			
AGR1280	SOILS FOR PRODUCTION	3			
AGR1263	COTTON PRODUCTION	4			
AGR1265	WEED SCIENCE	3			
AGR1260	APPLIED ENTOMOLOGY AND PEST MANAGEMENT		3		
AGR1204	PRECISION AGRICULTURE SYSTEMS		3		
AGR1259	CROP INSPECTION & MANAGEMENT TECHNIQUES		3		
AGR1200	GLOBAL POSITIONING & GEOGRAPHICAL INFO SYSTEMS		3		
AGR1202	PRECISION HARDWARE & SOFTWARE SYSTEMS		3		
AGR1207	DATA: COLLECTION & INTERPRETATION			3	
AGR1206	AG ELECTRICAL & ELECTRONIC SYSTEMS			3	
AGR1261	AGRICULTURE CHEMICALS & FERTILIZERS			3	
AGR1205	AG AERIAL SYSTEMS			3	
AGR1203	REMOTE SENSING, MAPPING & MANAGEMENT			3	
INTERNSHIP					
AGR1248	AGRICULTURAL WORK EXPERIENCE I		1		
AGR1277	AGRICULTURAL WORK EXPERIENCE II			1	
TOTAL TECHNICAL HOURS (50)		18	16	16	

- List any pertinent program accreditation available:
  - Provide a rationale for seeking or not seeking said accreditation
    None available
  - If seeking accreditation, also describe the plan to achieve it
    N/A

Faculty
- Describe faculty qualifications and/or certifications required to teach in the proposed program.
  - Full-time Faculty and Adjunct requirements – A Bachelors required or Associates in related field and practical industry experience or teaching experience.
  - Program is technical and not designed to be a transfer degree. Faculty requirements include one degree-level higher that the degree of the program offered.

Cost and Funding for Proposed Program
- Provide a detailed budget narrative that describes all costs associated with the proposed program (physical facilities, equipment, faculty, instructional materials, accreditation, etc.).
  Cowley College is committed to funding new academic programs. If this program is approved, the budget will be set for the next budget year using the amounts listed on CA-1a. This money will come from the technical education departmental budget using existing department dollars and reallocation of dollars from accounts that have residual dollars. Equipment needs will be meet through shared resources with the Agriculture program and through possible donations from

area businesses. The Cowley College Foundation is also seeking monies from donors that can be used to purchase equipment or to fund scholarships for students.

Equipment will be purchased as needed for the courses offered. Equipment for the certificate A is already purchased for the first semester, along with some of the equipment needed for the second semester of courses.

- Provide detail on **CA-1a form.**
- Provide Excel in CTE fee details on the **CA-1b form.**
- If the program is requesting Perkins funds, provide details on the **CA-1c form**.
- If the program is requesting KS Promise Act eligibility, provide details on the **CA-1d form**.
- Describe any grants or outside funding sources that will be used for the initial startup of the new program and to sustain the proposed program.
  - Monies through rural economic development, state and local grants will be explored and applied for, as well as business partner donations. The Cowley College Foundation also accepts donations and has already received funds from a donor that has set up funds dedicated to agriculture training.

Program Review and Assessment

- Describe the institution's program review cycle.
  - The program will be reviewed and assessed twice a year by the College Agriculture Advisory board. This board will govern over all technical Agriculture programs offered. The college has taken great care to have a variety of backgrounds on the Ag Advisory Board to keep the program on the right track to meet the ever-changing needs of the Agricultural industry in the service area.
  - **Academic Program Review evaluation cycle** assures each academic program is evaluated at least once every three - five years. In this model, every academic program and discipline will be intensively evaluated within a five-year cycle.
    In addition, academic programs and disciplines are expected to engage in an annual Progress Review in order to assess their progress towards task completion written in their "Plan of Action and Continuous Program Improvement" and to document progress made toward Program Learning Outcomes (PLO). The cycle will remain flexible to adjust to the dynamic nature of existing programs/disciplines and emerging specialties that may lead to program/discipline modifications and/or development of new programs/disciplines.

  - Efforts will be made to accommodate program/discipline accreditation schedules, minimizing duplication of effort and to accommodate unexpected changes in program/discipline resource needs, curriculum modifications, and student demographics that require immediate and comprehensive responses.

  - Data collected and analyzed in the program review includes: faculty credentials, stakeholder feedback (advisory and employer), program enrollment data by headcount, FTE, demographics, program completers, employment or transfer rates, program learning outcomes assessment, budget and facilities data, and other information needed for external reports.

  - Program review also includes program needs and improvement targets for the next review cycle. In addition, with anticipation of approval for Perkins eligibility, we will implement Perkins program follow-up reporting procedures.

Program Approval at the Institution Level

- Provide copies of the minutes at which the new program was approved from the following groups:
  - Program Advisory Committee
    (including a list of the business and industry members)

Advisory Committee Meeting Agenda
Cowley College
AGRICULTURE
April 6, 2021 @ 5:30pm
Wellington Campus and Zoom

5:30 pm Advisory Board Dinner
6:00 pm Welcome/Call to Order – *Buddy*
Attendance: *Nancy Bowling, Linda Chase, Rex Friesen Phd, Dr. Richard Heersche, Randy Hein, Justina Metz, Buddy Curry, Larry Theurer*
Zoom Attendees: *Dr. Carson Abrams, Lawson Hemberger, Kim Miller, Melinda Farris, Vince Utter*
Approval of Previous Meeting Minutes
Justina motioned to approve the previous meeting minutes, Randy Hein second the motion, all approved.

New Business (New Program)
Precision Agriculture Course Procedures
• AGR1201 Intro to Precision Agriculture
• Discussion
• **Recommendations - None**
• **Motion to accept –** *Larry motioned to accept the course procedure as is, Rex 2nd the motion. Motion Passed unanimously.*
• AGR1202 Precision Hardware and Software
• Discussion
• **Recommendations - None**
•   • **Motion to accept –** *Linda motioned to accept the course procedure as is, Nancy 2nd the motion. Motion Passed unanimously.*
•   • **AGR1203 Remote Sensing Mapping & Management**
•   • Discussion
•   • **Recommendations - None**
•   • **Motion to accept –** *Larry motioned to accept the course procedure as is, Linda 2nd the motion. Motion Passed unanimously.*
• AGR1204 Precision Agriculture Systems
• Discussion
• **Recommendations - None**
• **Motion to accept –** *Justina motioned to accept the course procedure as is, Linda 2nd the motion. Motion Passed unanimously.*
• AGR1205 AG Aerial Systems
• Discussion
• **Recommendations - None**
• **Motion to accept –** *Larry motioned to accept the course procedure as is, Randy 2nd the motion. Motion Passed unanimously.*
• AGR1206 AG Electrical & Electronics
• Discussion ○ *Vince suggested to add a statement in the electrical portion for a lock-out tag-out, so a system cannot be turned back on while someone is working on it.*
• **Recommendations –** *Add statement as written above.*

• **Motion to accept -***Larry motioned to accept the course procedure once the addition has been made and Linda 2nd the motion.*
• **AGR1207 Data Collection & Interpretation**
• Discussion
• **Recommendations - None**
• **Motion to accept –** *Linda motioned to accept the course procedure as is, Nancy 2nd the motion. Motion Passed unanimously.*

Precision Agriculture Degree Grids
• **AAS Degree -Precision AG**
• Discussion
• **Recommendations –** *None*
• **Motion to accept –** *Nancy motioned to accept the degree grids as presented, Larry 2nd the motion.*

• **Cert A – Precision AG**
• Discussion
• **Recommendations -** *None*
• **Motion to accept –** *Nancy motioned to accept the degree grids as presented, Randy 2nd the motion.*

• **Cert B – Precision AG**
• Discussion
• **Recommendations -** *None*
• **Motion to accept –** *Randy motioned to accept the degree grids as presented, Justina 2nd the motion.*

• **Cert C – Precision AG**
• Discussion
• **Recommendations -** *None*
• **Motion to accept –** *Rex motioned to accept the degree grids as presented, Larry 2nd the motion.*

Program Needs:
•   • Lab Facilities
•   • Agriculture classroom facility
•   • Arena
•   • Holding facility

Going Forward
Schedule Next Advisory Board Meeting
To be determined
Motion to adjourn
Larry motioned to adjourn, all approved.
meeting ended at 7:25pm

    o   Curriculum Committee

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ACADEMIC AFFAIRS MEETING MINUTES

September 16, 2021

Student Center Conference Room

2:30 pm

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In person attendance: Chris Cannon, Marlys Cervantes, Buddy Curry, Mark Flickinger, Devin Graves, Michelle Schoon, Todd Shepherd, and Janice Stover. Julie Rhoads attended the first half of meeting. Attendance via ZOOM: Eddie Andreo, Jan Grace and Julia Jarboe.

- COURSE/CURRICULUM UPDATES
  - o Changes to Business Administration Degree Grid – Recommendations for changes to the Business Administration program grid was presented with consideration to the latest 2+2 agreement with WSU. After discussion, Todd will take the recommendations back to his department to review. Concern over removal of Business Calculus and Elementary Statistics was voiced.
  - o Precision Ag Courses approval - The following course procedures for 8 new courses were presented for approval. Janice moved and Chris seconded to approve all eight course procedures. Motion carried.
    - ▪ AGR1200 – GPS & GIS
    - ▪ AGR1201 – Introduction to Precision Ag
    - ▪ AGR1202 - Precision Hardware & Software
    - ▪ AGR1203 – Remote Sensing, Mapping & Management
    - ▪ AGR1204 – Precision Agriculture Systems
    - ▪ AGR1205 – Ag Aerial Systems
    - ▪ AGR1206 – Ag Electrical & Electronic Systems
    - ▪ AGR1207 – Data: Collection & Interpretation

<div align="center">

ACADEMIC AFFAIRS MEETING MINUTES

November 18, 2021

Student Center Conference Room

2:30 pm

</div>

In person attendance: Marlys Cervantes, Buddy Curry, Mark Flickinger, Devin Graves, Michelle Schoon, Todd Shepherd, Scott Layton, and Janice Stover.
Attendance via ZOOM: Jan Grace, Julia Jarboe, and Chris Cannon.

COURSE/CURRICULUM UPDATES
  - o Precision AG AAS
  - o Precision AG Cert A
  - o Precision AG Cert B
  - o Precision AG Cert C

All of the courses and program outlines were pre-approved by Buddy's Council. The goal is to start these programs in the Fall of 2022.
Motion to approve was made by Chris Cannon, seconded by Todd Shephard. Approved.
This will be on the December Board of Trustees Agenda for approval and Buddy is working on getting adjuncts for these courses.

     o Governing Board
       (including a list of all Board members and indicate those in attendance at the approval meeting)

EXCERPT OF MINUTES
MEETING OF THE GOVERNING BODY OF COWLEY COLLEGE, COWLEY COUNTY, KANSAS,
HELD ON DECEMBER 13, 2021
The Board of Trustees of Cowley College met in open session in the Short Community Room of the Short
General Education Center on the Sumner Campus, 2208 Davis-White Loop, Wellington, KS. The Chairperson
presided, and the following members of the Board of Trustees were present or absent as indicated:

Present (X) Absent (O)
Dr. Steve Abrams, Trustee X
JoLynn Foster, Trustee X
Ned Graham, Trustee X
Brian Sanderholm, Trustee X
Christopher Swan, Trustee X
Gary Wilson, Chair X
Glennis Zimmerman, Trustee X
Tiffany Vollmer, Clerk of the Board X

The Chairperson declared that a quorum was present and called the meeting to order. The Board of Trustees heard
and approved the 2020-2021 Annual Audit, Awards and Reports, Public Comment, Consent Agenda,
Procurement, and Discussion Agenda.
(Other Proceedings)
* * * * * * *
Under Standing Committee Reports, in the Trustee Academic Subcommittee report, Trustee Dr. Steve
Abrams requested the following:
       A RESOLUTION APPROVING THE PRECISION AGRICULTURE CERTIFICATES A,
       B, C, AND THE ASSOCIATE OF APPLIED SCIENCE (AAS) AS PRESENTED.

Thereupon, Trustee Abrams moved that said Resolution be passed. The motion was
seconded by Trustee Zimmerman . Said Resolution was duly read and considered, and upon being put, the motion
for the adoption of said Resolution was carried by the vote of the governing body, the vote being as follows:
Aye: 7
Nay: 0

       Thereupon, the Chairperson declared the Resolution duly adopted and was signed by the
       Chairperson and attested by the Clerk of the Board of Trustees.

Submit the completed application and supporting documents to the following:
       Director of Workforce Development
       Kansas Board of Regents
       1000 SW Jackson St., Suite 520
       Topeka, Kansas 66612-1368

Appendix A Letters of Support

SUMNER COUNTY FARM BUREAU
The Voice of Agriculture

PO Box 850

~~608 N. Washington, P.O. Box 608, Wellington, KS 67152~~   Oxford, KS 67119

(620) 326-5161, email: sumnerfb@kfb.org

January 21, 2022

To Whom It May Concern,

The Sumner County Farm Bureau Association is a non-profit, agriculture and rural community advocacy group. We are based in Oxford and represent all of Sumner County. We are also part of Kansas Farm Bureau and American Farm Bureau. The agriculture industry is a major part of Sumner County's economy. As the equipment and tools used by the agriculture industry become more and more technologically advanced, the demand for young people who have the training to use them will continue to rise.

We have supported Cowley College in Sumner County, and their Agriculture program, since the beginning. The proposed Precision Ag Technology program would be an important addition to the courses already offered by Cowley College. Like every other industry, agriculture is incorporating more and more technology, and it's rapidly advancing. The demand for people who understand the technology and know how to operate it is advancing at the same rate. The ability to understand and use the new technology, along with being able to troubleshoot it when there are problems, will be a skill that's highly valued by farmers in the area.

We fully support the addition of a Precision Ag Technology program at Cowley College Sumner Campus. It will offer great opportunities for the students and fulfill a definite need in the area and the industry.

Sincerely,

Thomas Norris
President, Sumner County Farm Bureau Association

To: Who it may concern,

South Central Precision Ag LLC fully intends to support the new Precision Ag Program that Cowley College is adding to their Agricultural Education Program. Precision Ag is an industry that is always changing and therefore requires high quality employees to work in the industry and keep up with changes in technology. We look forward with the future program. Our company plans on providing tours, workshops, aiding in labs and being a guest lecturer for class. The graduates from the program will be able to apply and interview with our company. Our company and the Cowley College should have a bright future.

Thanks,

Kyle Smith

South Central Precision Ag LLC

kyle@scprecisionag.com

620-441-7913

February 15, 2022

Buddy Curry
Cowley College
Department of Agriculture
2205 Shurtz-Juden Loop
Wellington Ks 67152

Buddy,
 I am Randy Hein, CEA, Agriculture and Natural Resources, for Sumner County, Kansas. Sumner County averages about 377000 acres of wheat annually, with an average of 135000 acres of row crops, with this amount of acreage in the county, I would express support for a Precision Ag course of study in your department at Cowley College.

The use of precision agriculture technologies to increase yields and profitability is a good thing for agriculture and our local economy. Producers using precision ag technologies equipment and methods is on the increase as producers seek for improved farming practices.

 I would like to see precision ag technologies in Sumner County more readily available and adopted by producers. I will be willing to assist you in developing this course of study to be offered by the college and be a guest lecturer.

Sincerely,

Randy V. Hein, CEA
Agriculture and Natural Resources
K-State Research and Extension
Sumner County
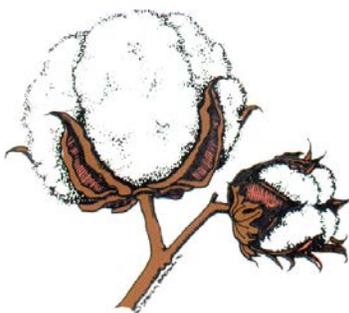
SOUTHERN KANSAS COTTON GROWERS COOPERATIVE, INC.
P.O. BOX 565
ANTHONY, KS 67003
TEL: (620) 842-3129

Rex Friesen, Ph.D.   February 16, 2022
Consulting and Public Relations
Tel: (620)-222-4818

To whom it may concern,

I am writing in support of the proposed course in precision agriculture to be offered at Cowley College. I have worked with farmers and crop consultants extensively these last 20 years in providing information and advice on growing cotton more successfully, with the ultimate objective, more profitably. It is clear to me that the explosion in new technologies and their applications offer more potential for significantly improving agricultural production than anything else I can imagine. Crop management has remained relatively unchanged for decades. That is, until recent years. New technology has allowed for the development of detailed field sampling (on the ground, plus from the sky via drones and or satellites), variable rate chemical and fertility applications, harvest monitors, and much more, which are having a profound impact on producers' abilities to manage their crops more conscientiously and efficiently. Being aware of, and being able to access, available technology and utilize it to its full potential will require exposure to, and training in, these technologies. This proposed course will provide these valuable assets.

Final comment. I am 60 years old and am not "up" on nearly all the capabilities of my computer at work. Having a person in the office who is much more competent in this area than me is a strong asset to me and our business. I believe the same to be true for producers and consultants. In this age of new technological advances—to have someone "on farm", or as a consultant, with this knowledge and knowhow will give that operation a distinct advantage over those who do not. The integration of technology and crop production is the future.

Sincerely,
Rex Friesen

Schmidt & Sons, Barry Schmidt
February 23, 2022

To whom it may concern,

I am writing in support of the proposed course in precision agriculture to be offered at Cowley College. It is clear to me that the explosion in new technologies and their applications offer more potential for significantly improving agricultural production and improve crop management. New technology has allowed for the development of detailed field sampling (on the ground, plus from the sky via drones and or satellites), variable rate chemical and fertility applications, harvest monitors, and much more, which are having a profound impact on producers' abilities to manage their crops more conscientiously and efficiently. Being aware of, and being able to access, available technology and utilize it to its full potential will require exposure to, and training in, these technologies. This proposed course will provide these valuable assets.

Our business is willing to provide internship opportunities to students and will set up field trips as requested to allow classes to visit our business to view the latest in agriculture technology.

Sincerely,

Barry Schmidt

February 23, 2022

Buddy Curry
Cowley College
Department of Agriculture
2205 Shurtz-Juden Loop
Wellington Ks 67152

Mr. Curry,
I am the owner of Slack Farms in Sumner County. We plant and harvest approximately 14,000 acres a year in Sumner County and technology is a huge part of our operation. Finding qualified employees is a challenge. We currently have 6, full-time employees with a median salary exceeding $60,000 per year plus full benefits. We are currently seeking other qualified employees, which is a challenge.

We would be willing and capable of providing guest lectures as requested, and we have a technology person that has a teaching degree and would be willing to provide this service.
My business can also provide internships as needed. I am willing to supply equipment to the program to help train students on the latest technology. I know of several fellow producer's with operation's similar to ours who have the same needs of finding qualified workers in the area of precision agriculture.

If you need additional information, don't hesitate to contact me.

Sincerely, Michael Slack
1442 East 60th St. South
Oxford, KS 67119
 620-222-8630 or 620-455-3562
mslack@kanokla.net

TWO RIVERS

COOP

Main Office
P.O. Box 1087
210 S "D"
Arkansas City,
KS 67005
620-442-2360

Feedmill
300 S "D"
Arkansas City,
KS 67005
620-442-7990

Geuda Springs
104 W. Grain Ave.
Geuda Springs,
KS 67051
620-447-3381

Udall
P.O. Box 380
112 SE St.
Udall, KS 67146
620-782-3621

Newkirk
P.O. Box 250
116 E. 6th St.
Newkirk, OK 74647
580-362-2109

West Elevator
1380 E 160th St. S
Geuda Springs,
KS 67051
620-447-3314

Marland
P.O. Box 549
213 S Main
Marland, OK 74644
580-268-3316

To Whom it may concern,

Two Rivers Coop is in support of Cowley College's new precision Ag degree program. We will provide tours of our operations, guest lectures on how we help area producers with our services and provide internship possibilities to students of the program. Students graduating from the program will have the oppturnity to apply for open positions in our cooperative. There has been a shortage of qualified applicants in this area for several years.

Sincerely,

Kevin Kelly
GM
Two Rivers Coop

Appendix B CA1a Fiscal Summary

Institution: ____Cowley College_____   Proposed Program: ___Precision Agriculture_____

PROGRAM SUSTAINABILITY COSTS (Second and Third Years)				
Part I. Program Enrollment		Second and Third Years		
Please state how many students/credit hours are expected during the first two years of the program?				
		Full-Time	Part-Time	
A. Headcount:		15	5	
Part II. Ongoing Program Costs		First Two Years		
A. Faculty		Existing:	New:	Funding Source:
Full-time	#1	$60,000	$	Budget – Institutional/Department
Part-time	#3	$12,000	$	Budget
		Amount	Funding Source	
B. Equipment required for program		$1500	Budget - Department	
C. Tools and/or supplies required for the program		$1500	Budget – Department	
D. Instructional Supplies and Materials		$1500	Budget - Department	
E. Facility requirements, including facility modifications and/or classroom renovations		$0		
F. Technology and/or Software		$20,000	Donations through Cowley Foundation (None the 3rd year)	
G. Other *(Please identify; add lines as required)*				
Total for Program Sustainability		$76,520		
IMPLEMENTATION COSTS				
Part I. Anticipated Enrollment		Implementation Year		
Please state how many students/credit hours are expected during the initial year of the program?				
		Full-Time	Part-Time	
A. Headcount:		8	2	
Part II. Initial Budget		Implementation Year		
A. Faculty		Existing:	New:	Funding Source:
Full-time	#1		$50,000	Budget
Part-time/Adjunct	#3	$	$12,000	Budget
		Amount	Funding Source	
B. Equipment required for program		$25,000	Grant	
C. Tools and/or supplies required for the program		$10,000	Grant & Donation	
D. Instructional Supplies and Materials		$1,500	Ag Budget	
E. Facility requirements, including facility modifications and/or classroom renovations		$0		
F. Technology and/or Software		$30,000	Grant & Donation	
G. Other *(Please identify; add lines as required)*				
Total for Implementation Year		$128,500		

Please indicate any additional support and/or funding for the proposed program:

Submit the completed application and supporting documents to the following:

                    Director of Workforce Development
                    Kansas Board of Regents
                    1000 SW Jackson St., Suite 520
                    Topeka, Kansas 66612-1368

Appendix C CA -1b Excel in CTE Fee Summary

KBOR Excel in CTE Fee Summary for Proposed Academic Programs CA-1b (2020)

Per statute (K.S.A. 72-3810), the Kansas Board of Regents shall establish general guidelines for tuition and fee schedules in career technical education courses and programs. The Excel in CTE tuition and fee schedule of every technical education program shall be subject to annual approval.
Please include all costs charged to **high school students** *for the proposed new program.*

Institution Name:	Cowley College
Program Title:	Precision Agriculture
Program CIP Code:	1.0301

Please list all fees associated with this **program**:
Only list costs the institution **is** *charging students.*

Fee	Short Description	Amount

Please list all courses within the program and any fees associated to those **courses**:
Only list costs the institution **is** *charging students. Do not duplicate expenses.*

Course ID	Short Description	Amount
AGR1259 Crop Inspection & Mngmt	Textbook - TBD AGR1259	$ 200.00
AGR1260 Applied Entomology & Pest Mngmt	Textbook - *Fundamentals of Entomology*/Elzinga	$ 200.00
AGR1261 Ag Chemicals & Fertilizer	Chemical Applicators exam	$ 20.00
AGR1261 Ag Chemicals & Fertilizer	Textbook - *Western Fertilizer Handbook*/Western Plan Health Assoc.	$ 100.00
AGR1262 Crop Production & Mngmt	Textbook - *Plant & Soil Science Fundamentals & Applications*/Parker	$ 125.00
AGR1263 Cotton Production	Textbook - TBD AGR1263	$ 150.00
AGR1265 Weed Science	Textbook - *Weed Science*/Wood Powell Anderson	$ 175.00
AGR1280 Soils for Production	Textbook -*Elements of the Nature & Properties of Soils*/Weil & Brady	$ 170.00
AGR1200 GPS & GIS	Textbook - *The Precision Farming Guide for Agriculturists*	$ 49.00
AGR1201 Intro. Precision Ag	Textbook - *Precision Agriculture Basics*/Shannon	$ 70.00

AGR1203 Remote Sensing, Mapping & Mngmt	Textbook - *Sensing Approaches for Precision Agriculture*	$ 152.00
AGR1205 Ag Aerial Systems	Textbook - *Unmanned Aerial Vehicle Systems in Crop Production*	$ 134.00
AGR1206 Ag Electrical and Electronics	Textbook - *Electronics & Electrical Systems*	$ 58.00

Please list items the student will need to purchase on their own for this program: Institution **is not** charging students these costs, rather students are expected to have these items for the program.		
Item	*Short Description*	*Estimated Amount*
Tool Set	Small tool set - consisting of variety of pliers, screw driver set, small sockets, wire stripers, electrical tape, wire fittings and case.	$ 150.00

Appendix D Perkins Eligibility Request

This application should be used for new programs (currently in the program approval process) or existing programs the institution would like reviewed for Carl D. Perkins funding eligibility.

Name of Institution	Cowley College
Name, title, phone, and email of person submitting the Perkins Eligibility application *(contact person for the approval process)*	Michelle Schoon, VP of Academic Affairs, 620-441-5204 michelle.schoon@cowley.edu
Name, title, phone, and email of the Perkins Coordinator	Chris Cannon, EMS Program Director and HHS Department Chair, 620-229-5985, chris.cannon@cowley.edu
Program Name	Precision Agriculture
Program CIP Code	01.0301 Agricultural Production Operations, General
Educational award levels <u>and</u> credit hours for the proposed request	65 cr hr – AAS, 18 cr hr - Cert A, 34 cr hr – Cert B, 50 cr hr– Cert C
Percentage of tiered credit hours for the educational level of this request	AAS – 80% tiered 55 tiered/65 total Cert A – 94% tiered 17/18 Cert B – 97% tiered 33/34 Cert C – 98% tiered 49/50
Number of concentrators for the educational level	New program seeking conditional approval.
Does the program meet program alignment?	Not a state aligned program.
Justification for conditional approval: *(this section must reference information found within the Local Needs Assessment)*	Local needs assessment indicates 944 annual openings in jobs that are related to this program with an average wage of $61,061
Pursuant to Americans with Disabilities Act, will the proposed program be offered in a location and format which is fully accessible, according to applicable ADA laws? *(Contact Board staff for technical assistance if there are questions regarding accessibility)*	Cowley classes and facilities are ADA compliant. The College has an accessibility coordinator that works with individual students depending on requested need.

Signature of College Official__ *Michelle Schoon* _____Date__2/23/2022___

Signature of KBOR Official_____ Date_____

Appendix E Course Procedures

COWLEY COLLEGE COURSE PROCEDURE

AGR 1206 AG ELECTRICAL & ELECTRONICS
3 Credit Hours

Student Level:
This course is open to students of any major, high school, freshman or sophomore.

Catalog Description:

AGR 1206 Ag Electrical & Electronics (3 hrs.)
This course is design to introduce students to electricity and electronics used in farm equipment. Students will perform basic installation, running of equipment and troubleshooting of the electrical and electronic systems on farm equipment.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to give agriculture students an understanding of the concept and importance of electronics and its use in today's agriculture.

Learner Outcomes:
Upon completion of the course, the student will:
1. Explain basic electrical systems and electrical properties.
2. Interpret schematics for electrical components for farm equipment.
3. Demonstrate the ability to run analysis on electrical and electronic components.
4. Interpret and apply basic troubleshooting techniques.
5. Demonstrate ability for decision making in the repair and maintenance of equipment.
6. Describe and apply basic skills in installation, collaboration and management of electronic components.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: ELECTRICITY
Outcomes: Students will list, describe and explain the basic use of electricity in equipment.

- Identify basic properties of electricity.
- Define current terminology.
- Develop and apply a basic knowledge of electrical systems.
- Demonstrate the ability to troubleshoot a basic electrical system.
- Discuss and describe Ohm's law.
- Demonstrate ability to use information gathered to make informed decisions.

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- Describe basic electrical hardware and software systems used on equipment.
- Explain basic codes associated with electrical components.

UNIT 2: SCHEMATICS
Outcomes: Students will demonstrate basic knowledge of schematics and its use in maintenance and installation decisions.

- Identify and interpret basic electrical system schematics used in equipment.
- Explain and demonstrate the usage of the schematic for electrical and electronic installation and maintenance systems.
- Recognize and interpret basic data received from the schematics.
- Demonstrate the use of a schematic in the field setting for decision making.
- Discuss the applications and usage of different hardware and software systems in precision agriculture.

UNIT 3: ELECTRONICS
Outcomes: Students will be able to perform basic duties in the operation, maintenance and repair of electronics.

- Explain basic electronic operation.
- Describe the process of electricity in electronics.
- Explain circuits and their function in electronics.
- Explain components of electronic devices and their function to make the device work.
- Describe electronic signals, switches, logic gates and PLC's.
- Demonstrate decision making skills in maintenance, repairs, troubleshooting and replacement of electronic equipment.

UNIT 4: ELECTRICAL SOURCES
Outcomes: Students will demonstrate knowledge of different types and processes found in batteries and other electricity producing equipment on machinery.

- Identify types of batteries and their function.
- Demonstrate the ability to troubleshoot battery issues.
- Describe the relationship of batteries and alternators for delivery of electricity.
- Demonstrate the ability to replace, maintain and depose of batteries and electrical producing devices on equipment.
- Demonstrate how batteries work and how they deliver electrical current.
- Demonstrate ability to wire and attach electronic equipment.
- Define the process of battery recharging.

UNIT 5: OPERATION, MANAGEMENT AND DECISIONS
Outcomes: Students will be able to apply systems to the management phase of the operation of electronic equipment.

- Define and identify the difference in system types and usage in the production process and their demand for electricity.
- Identify and explain each system and is use in the overall management of the operation.
- Explain the process and need of each system and its relationship to the overall

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production.
- Interpret each type of electronic system and the use of that system to enhance production.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.

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COWLEY COLLEGE COURSE PROCEDURE

AGR 1207 DATA COLLECTION & INTERPRETATION
3 Credit Hours

Student Level:
This course is open to students of any major, high school, freshman or sophomore.

Catalog Description:

AGR 1207 Data: Collection & Interpretation (3 hrs.)
This course is designed to introduce students to data. Students will perform data mining, data analysis, compile reports and interpret the results to make production and management decisions.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to give agriculture students an understanding of the concept and importance of data and its use in today's agriculture.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate ability to collect and organize data.
2. Demonstrate the ability to run analysis on data.
3. Interpret and apply statistical analytical techniques.
4. Demonstrate ability to summarize data into usable information for decision making.
5. Describe and apply management skills and decisions in accordance to data information.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: DATA COLLECTION & ORGANIZATION
Outcomes: Students will list and describe where data can be collected and the process of organizing it for use.

- Identify needed data and software producing data.
- Define data required for decision making.
- Develop and apply a system to organize data collection.
- Demonstrate the ability to collect data information.
- Discuss the applications and usage of data in precision agriculture.
- Demonstrate ability to use information from data to make decisions.
- Describe basic hardware and software systems used for crop management and

precision agriculture where data can be collected.

UNIT 2: DATA ANALYSIS
Outcomes: Students will demonstrate basic knowledge of data and its use in production decisions.

- Identify and explain the types and brands of software systems used in data analysis.
- Explain and discuss the basic usage of software function and its use in data analysis.
- Recognize and interpret the basic data received from industry systems used.
- Identify and explain operation systems of various software and how it benefits production decisions.
- Demonstrate the use of data in the field setting for decision making.
- Discuss the applications and usage of different software in precision agriculture.

UNIT 3: STATISTICAL ANALYSIS
Outcomes: The student will be able to interpret, discuss and apply statistical analysis on data collected.

- Explain statistical analysis and the various software and hardware systems that can run it.
- Describe the process of statistical analysis and its relationship with decision making.
- Discuss map projections, coordinating systems, software that drives the information and how the statistical model can affect those decisions.
- Explain inputs based on real-time data, the software that it comes from and how it plays a role in the final statistic model for decision making.
- Demonstrate decision making skills with data, additional information and statistic modeling.

UNIT 4: SUMMARIZING DATA
Outcomes: Students should demonstrate a knowledge of the data summation process.

- Identify errors that can occur.
- Demonstrate the ability to summarize data in a usable collection of information.
- Describe the relationship of finalized data to the decision-making process.
- Demonstrate the ability to troubleshoot data when information seems to be off.
- Demonstrate ability to write and correlate information.
- Demonstrate ability to read, use and interpret instructions.
- Define the process of summarizing data.
- Apply the summation of data to making production decision.

UNIT 5: OPERATION, MANAGEMENT AND DECISIONS
Outcomes: Apply the systems to the management phase of the operation.

- Define and identify the difference in system types and usage in the production process.
- Identify and explain each system and its use in the overall management of the operation.
- Explain the data received from each system and how it can affect decisions.
- Interpret each type of system and the use of the data it may provide.
- Describe and meld informational data from each system to enable farm management

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decision making.
- Demonstrate the ability to make decisions in a timely manner from all information received.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.

7/27/2021
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3

COWLEY COLLEGE COURSE PROCEDURE

AGR 1213 AG COMPUTATION
3 Credit Hours

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:

AGR 1213 – Ag Computation (3 hrs)
Using basic mathematics, statistical interpretations, formulas, measurements, and basic algebra a student will use spread sheets and data analysis (e.g. MS Excel) to support agribusiness management decisions in a wide range of agriculture situations to increase understanding of problem solving and decision making.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this this course is to provide the student with the knowledge and skill necessary to use basic mathematics, statistical interpretations, formulas, measurements, and algebra to create spread sheets and data analysis (e.g. MS Excel) to support agribusiness management decisions in a wide range of agriculture situations to increase understanding of problem solving and decision making.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate the ability to perform basic mathematical computation
2. Utilize Basic Geometry and algebra in basic agriculture problem solving
3. Apply the use of mathematics to different agriculture areas.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: BASIC MATHEMATICAL COMPUTATION
Upon completion of this unit, the students will be able to successfully demonstrate the ability to perform basic mathematical computation.
- Convert numbers to and from fractions to decimals, and percentages
- Use algebraic expressions to solve problems
- Use geometric formulas to determine volumes and area.

UNIT 2: GEOMETRY AND ALGEBRA

Outcomes: Upon completion of this unit, the students will be able to successfully utilize basic geometry and algebra in basic agriculture problem solving.

- Locate, describe and calculate area of specific parcels of land, using the Rectangular Survey
- Compute crop nutrient use and needs; seeding rates and crop harvest yields.
- Compute chemical application rates and calibrate sprayers to apply the computed rate.

UNIT 3: APPLICATION OF MATH TO AGRICULTURE

Outcomes: Upon completion of this unit, the students will be able to successfully apply the use of mathematics to different agriculture areas.

- Define various animal nutrient needs and formulate rations to meet those needs.
- Explain moisture and dry matter content of forages and feeds.
- Compute proper stocking rates for various animal species on pastures.
- Calculate and project genetic values of various economic traits in offspring.
- Calculate economic values and ratios in the area of animal science.
- Create and analyze farm enterprise records, balance sheets and cash flow statements.
- Choose and compute depreciation schedules for agricultural applications.
- Calculate actual interest rates given various types of loans and terms.
- Define basis, cash price and futures price in any of several given types of common hedging methods.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1230 AGRICULTURAL ECONOMICS
3 Credit Hours

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:
AGR 1230 – Agricultural Economics (3 hrs)
Agricultural economics applies the principles of economics to issues of agricultural production, natural resources, and farm development. Topics include product markets, farm production and market structure, global competition as well as international trade and government regulation.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of Agricultural Economics is to provide students with an understanding of basic economic concepts involved in domestic and foreign agriculture necessary to enter and progress in positions in production agriculture, agricultural marketing industries, and related agri-business areas.

Learner Outcomes:
Competencies will be developed in the understanding of the principles of economics as applied to agriculture and the application of these principles to management in agriculture.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: TERMINOLOGY
Outcomes: Upon completion of the unit, the students will be able to successfully describe and apply economic terms associated with production agriculture and the population it supports.

- Define and use basic economic terms.
- Identify basic economic concepts.
- Explain population and resource trends and characteristics.

UNIT 2: AGRICULTURAL ECONOMICS AND THE WORLD
Outcomes: Upon completion of the unit, the students will be able to successfully list global food needs and report on world hunger differences based on economic status.

- Identify and explain characteristics of U.S. farms and food consumption.

- Describe and apply the basic tools of economic analysis.
- Identify world food needs and supplies.

UNIT 3: AGRIBUSINESS PLAN
Outcomes: Upon completion of the unit, the students will be able to successfully demonstrate the ability to build a business plan for an agribusiness enterprise based on economic concepts and policies.

- Analyze agricultural problems and policies.
- Describe economic managerial concepts.
- Make decisions based on economic managerial concepts.
- Develop agriculture and agribusiness plans based on economic concepts.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1211 AGRICULTURE ORIENTATION
1 Credit Hour

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year and to area high school vocational students.

Catalog Description:
AGR 1211 – Agriculture Orientation (1 hr)
This course is an orientation to curriculum and career opportunities in the Agriculture Industry. Emphasis will be on career planning as related to a chosen profession and agricultural community. The development of the agriculture industry will also be included as it pertains to career opportunities.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this his course is an orientation to curriculum and career opportunities in the Agriculture Industry. Emphasis will be on career planning as related to a chosen profession and agricultural community. The development of the agriculture industry will also be included as it pertains to career opportunities.

Learner Outcomes:
Upon completion of the course, the student will
1. Demonstrate time management, study skills, and goal setting skills.
2. Describe courses and programs in the Agricultural Program and how they relate to the university Bachelor Degree Programs.
3. Develop educational plans and goals based on career objectives and understand the educational opportunities that are available.
4. Identify career opportunities in the Agriculture Industry.
5. Demonstrate skills and preparation needed to obtain a career in Agriculture.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: BASIC SKILL FOR SUCCESS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate time management, study skills, and goal setting skills.

- Identify and record their personal goals and priorities.

- Identify personal obstacles to productivity through a self-assessment of personal
- time management practices and habits
- Identify greatest time wasters – and determine how to avoid or eliminate them.
- Identify how to maximize their time in order to accomplish their goals both
- personally and professionally.
- Utilize Library resources
- Analyze and apply individual learning styles
- Develop and implement an action plan to meet an achievable academic goal

UNIT 2: KNOWLEDGE OF COURSES AND DEGREES
Outcomes: Upon completion of this unit, the students will be able to successfully describe courses and programs in the Agricultural Program and how they relate to university Bachelor degree programs.

- Compile a portfolio of three university agriculture programs, outlining admission and transfer requirements, degree requirements, course transfer opportunities, and cost to attend.
- Compare degree, transfer, and cost requirements between a 2+2 program, a transfer program, and a full 4-year program.

UNIT 3: SETTING PLANS AND GOALS
Outcomes: Upon completion of this unit, the students will be able to successfully develop educational plans and goals based on career objectives and understand the educational opportunities that are available.

- Identify and demonstrate processes for making short and long term goals.
- Demonstrate knowledge of technology and its application in career fields/clusters.
- Develop a career and education plan that includes short and long-term
- goals, high school program of study, and postsecondary/career goals.

UNIT 4: CAREERS IN AGRICULTURE
Outcomes: Upon completion of this unit, the students will be able to successfully identify career opportunities in the Agriculture Industry.

- Develop skills to locate, evaluate, and interpret career information
- Discuss professional opportunities for future graduates with training in agriculture.
- Outline current and recent labor and agriculture statistical trends.
- Describe current trends in placement and salaries of agriculture graduates.
- Compile a portfolio of ten career opportunities outlining education, knowledge, skills, abilities, and employment/wage data.

UNIT 5: JOB SEEKING SKILLS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate skills and preparation needed to obtain a career in Agriculture.

- Demonstrate how to write a resume.
- Demonstrate how to revise a resume to meet the needs of a specific job opportunity.
- Demonstrate how to write a cover letter.

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- Complete an online Job Seeker profile on KansasWorks.
- Demonstrate employability skills such as working in a group, problem
  -solving and organizational skills, etc.
- Identify and describe the importance of entrepreneurship in agriculture.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1248 AGRICULTURAL WORK EXPERIENCE I
1 Credit Hour

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:

AGR 1248 – Agricultural Work Experience I (1 hr)
The purpose this coarse is give the student work experience necessary for the student to gain a job in his elected area of interest. This will be done by the student finding an internship with a company, local farmer, or through the Cowley Agriculture program, with the mentorship of the instructor.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to provide the student with the opportunity to learn valuable employability skills, work ethics, and work experience necessary for the student to obtain and retain a career in Agriculture.   The student will experience in job seeking, application & interview, and workplace skills with the mentorship of the instructor.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate pre-employment techniques regarding job seeking and interview processes
2. Demonstrate soft skills and positive work ethic while employed

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: BASIC JOB SEARCH AND INTERVIEW SKILLS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate pre-employment techniques regarding job seeking and interview processes

- Compare potential entry-level positions
- Develop a working resume and cover letter
- Demonstrate interview skills (Attire, punctuality, preparedness, follow-up)

UNIT 2: WORK ENVIRONMENT AND SKILLS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate

soft skills and positive work ethic while employed.

- Participate in the daily operation of the selected employer
- Comply will all regulations and safety procedures as outlined by the employer
- Complete summary of duties and outline of competencies developed
- Complete and submit proper reports/forms (supervisor review)

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1261 AGRICULTURE CHEMICALS AND FERTILIZER
3 Credit Hours

Student Level:
This course is open to students of any major, but is an elective for AAS.

Catalog Description:

AGR 1261 – Agriculture Chemicals and Fertilizer (3 hrs.)
A course in the usage of pesticides, herbicides and fertilizers in agriculture. Students will be introduced to the characteristics of pesticides, herbicides, and their usage along with the calibration of equipment. The next part of the course will examine fertilizer types, usage, handling, and calibration of equipment.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to give the agricultural student a good grasp of economic impact that chemicals and fertilizers have on production of cereal crops.

Learner Outcomes:
Upon completion of the course, the student will:
1. Identify the proper handling of chemical and fertilizer.
2. Demonstrate application techniques and rate calculations.
3. Identify the different chemicals used for fertilizers and pest control.
4. Demonstrate economical value of chemical and fertilizer utilization.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: HANDLING OF CHEMICALS
Outcomes: Students will identify the proper handling of chemicals and fertilizers.

- Employ and demonstrate knowledge of handling herbicides.
- Demonstrate and employ knowledge of handling pesticides.
- Demonstrate knowledge of handling fertilizer.
- Identify and Explain proper safety techniques in handling products.

UNIT 2: APPLICATION TECHNIQUES
Outcomes: Students will demonstrate application techniques and rate calculations.

- Provide a list of which product to use in each situation.
- Demonstrate what application techniques are necessary for herbicides.
- Describe what application techniques are necessary for pesticides.
- List and employ what application techniques are necessary for fertilizer.
- Perform calculation for application of chemicals.

UNIT 3: CHEMISTRY OF FERTILIZERS, HERBICIDES, AND PESTICIDES
Outcomes: Students will identify the different chemicals used for fertilizers and pest control.

- Demonstrate basic knowledge of chemistry.
- Identify fertilizer types and usage.
- List chemical types and usage for pest and weed control.

UNIT 4: APPLICATION RATE AND COSTS
Outcomes: Students will demonstrate economical value of chemical and fertilizer utilization.

- Calculate application rate and pricing for fertilizer.
- Determine application rate and pricing for herbicide.
- Demonstrate application rate and pricing for pesticides.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1259 CROP INSPECTION AND MANAGEMENT TECHNIQUES
3 Credit Hours

Student Level:
This course is open to all students.

Catalog Description:

AGR 1259 – Crop Inspection and Management Techniques (3 hrs.)
A course designed to introduce students to crop advisement. The student will be instructed on proper technique used in examination of a field, how to give advice on proper management techniques and advise on needed inputs to maximize production.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of course is give the agricultural student the understanding of consulting techniques used within the grain and cotton production industry.

Learner Outcomes:
Upon completion of the course, the student will:
1. Interpret and relate the need of fertilizer.
2. Demonstrate the ability to calculate rate calculations for application needs.
3. Identify and relate the need of pesticides.
4. Analyze and relate the need of herbicides.
5. Demonstrate proper communication skills with farmers.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: SOIL DATA
Outcomes: Students will Interpret and relate the need of fertilizer.

- Demonstrate the ability to read a soil test
- Calculate fertilization rates
- Ability to explain fertilization needs to farmer

UNIT 2: APPLICATION RATES
Outcomes: Students will demonstrate the ability to calculate application rates.

- Calculate rate for fertilizer.

- Determine the rate for herbicide.
- Calculate rate for pesticide.

UNIT 3: PESTICIDES
Outcomes: Students will identify and relate the need of pesticides.

- Demonstrate the knowledge of insect infestations and population.
- Identify and Explain need of pesticide.
- Demonstrate ability to determine which pesticides to use.

UNIT 4: HERBIDICES
Outcomes: Students will analyze and relate need of herbicides.

- Demonstrate knowledge of weed infestations.
- Identify and explain herbicides.
- Demonstrate knowledge of herbicide usage.

UNIT 5: COMMUNICATION
Outcomes: Demonstrate proper communication skills with farmers.

- Explain the need of Oral Communication Skills
- Demonstrate written communication skills.
- Apply the ability to utilize electronic communications

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1260 APPLIED ENTOMOLOGY & PEST MANAGEMENT
3 Credit Hours

Student Level:
This course is open to all students

Catalog Description:

AGR 1260 – Applied Entomology & Pest Management (3 hrs.)
This course enriches a student knowledge of insects and closely related arthropods to the effects they have on agriculture. The following will be included; classification of insects, behaviors and tendencies, relationship and importance to animals and plant economics, and steps in control.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to give the agricultural student a knowledge of the world's economic impact from insects and other pests, as well as control methods.

Learner Outcomes:
Upon completion of the course, the students will:
1. Identify economic impactful insects and other pests.
2. Recognize control methods need in both the crop and animal industry.
3. Perform basic calculations used in the industry.
4. Demonstrate basic knowledge of chemicals used in the industry.

The learning outcomes and competencies detailed in this course procedure meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as sanctioned by the Kansas Board of Regents.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: INTRODUCTION TO PESTS
Outcomes: Students will be able to identify economic impactful insects and other pests.

- Identify and explain economic impactful insects.
- Identify and explain other living pest.
- Explain economic impact of pest.
- Identify insects and explain which industry is affected.

UNIT 2: CONTROL OF PESTS

Outcomes: Students will recognize control methods needed in both the crop and animal industry.

- Identify control method for all natural crop systems.
- Determine control method in commercial crop systems.
- Illustrate control methods for all natural animal production.
- Determine control methods in commercial animal production.

UNIT 3: APPLICATION

Outcomes: Students will be able to perform basic calculations used in industry.

- Calculate mixing solutions for pesticides and herbicides
- Solve application rates by acreage.
- Calculate application rates by weight of animal.
- Appraise usage of chemical for pricing.

UNIT 4: CHEMISTRY AND PEST IDENTIFICATION

Outcomes: Students will demonstrate basic knowledge of chemicals used in industry.

- Identify what is insecticide and what is not.
- Identify and explain carrier.
- Demonstrate knowledge of storage and disposing of chemicals.
- Illustrate proper handling of materials.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
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Grading Policy:
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Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1262 CROP PRODUCTION AND MANAGEMENT
4 Credit Hours

Student Level:
This course is open to students of any major, but is an elective for AAS.

Catalog Description:

AGR 1262 – Crop Production and Management (4 hrs.)
A course designed to introduce students to applied crop production and the management techniques utilized in the production of domesticated crops used for human consumption and clothing.

Course Classification:
Lecture/Lab

Prerequisites:
None

Controlling Purpose:
The purpose of course is give the agricultural student the understanding of applied crop production and management techniques.

Learner Outcomes:
Upon completion of the course, the student will:
1. Identify the need of crop production.
2. Demonstrate the knowledge of various farming techniques.
3. Explain and utilize management techniques.
4. Demonstrate record keeping.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: CROP INTRODUCTION
Outcomes: Students will identify the need of crop production.

- Demonstrate the knowledge of crops and their purposes.
- Identify various production techniques.
- Explain the relationship of farming to world population

UNIT 2: PRODUCTION TECHNIQUES
Outcomes: Student will demonstrate the knowledge of various farming techniques.

- Identify various equipment.
- Demonstrate knowledge of no-till farming.

- Demonstrate knowledge of tillage
- Explain chemical and fertilizer usage.
- Identify and explain environmental relationships between farming and the environment.

UNIT 3: MANAGEMENT TECHNIQUES
Outcomes: Students will explain and utilize management techniques.

- Demonstrate ability to manage employees and their needs.
- Illustrate appropriate record keeping.
- Demonstrate proper communication skills.

UNIT 4: RECORD MANAGEMENT
Outcomes: Students will demonstrate record keeping.

- Identify the necessary record keeping techniques utilized.
- Recognize and log production techniques.
- Demonstrate the ability to manage proper inventory.

UNIT 5: COMMUNICATION
Outcomes: Demonstrate proper communication skills with farmers.

- Define and utilize Oral Communication Skills
- Demonstrate and explain written communication skills.
- Show the ability to utilize electronic communications

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

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COWLEY COLLEGE COURSE PROCEDURE

AGR 1263 COTTON PRODUCTION
4 Credit Hours

Student Level:
This course is open to all students.

Catalog Description:

AGR 1263 – Cotton Production (4 hrs.)
Introduce students to cotton production in Southern Kansas. Information covered are as follows; Soil preparation, growth stages, pest types and controls, nutritional needs, harvesting, and items provided by cotton to humans and livestock.

Course Classification:
Lecture/Lab

Prerequisites:
None

Controlling Purpose:
The purpose of course is to give agricultural students a good grasp of Cotton production and its economic impact.

Learner Outcomes:
Upon completion of the course, the student will:
1. Identify and explain production techniques.
2. Recognize and explain equipment, technology and process use in the industry.
3. Demonstrate basic knowledge of crop disease prevention steps and how to relay that information.
4. Demonstrate basic knowledge of soil and plant health, cotton uses, and environmental effects.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: INTRODUCTION TO COTTON
Outcomes: Students will identify and explain production techniques.

- Evaluate and identify seed and seed selection.
- Identify and explain Fertilizer and its usage.
- Discuss and Identify field preparation and planting.
- Demonstrate knowledge of growing techniques.

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UNIT 2: COTTON PRODUCTION
Outcomes: Students will recognize and explain equipment, technology and processes used in the industry.

- Illustrate and explain planting adjustment, depth, etc.
- Identify equipment use in precision ag.
- List and explain harvesting equipment.
- Explain seed treatment.

UNIT 3: COMMUNICATION AND CHEMICALS
Outcomes: Demonstrate basic knowledge of crop disease prevention steps and how to relay that information.

- Demonstrate knowledge of delivery systems for fertilizer.
- Discuss pests and insects that can affect production.
- Demonstrate knowledge of plant diseases and prevention techniques.
- Express knowledge of written communication.
- Employ a knowledge of and usage of verbal communication.

UNIT 4: ENVIRONMENTAL EFFECTS
Outcomes: Students will demonstrate basic knowledge of soil and plant health, cotton uses, and environmental effects.

- Demonstrate knowledge of collecting soil samples and interpreting results.
- Explain cotton usage and its economic relationships.
- Recognize signs of plant health issues.
- Identify and explain environmental relationships between cotton and its surroundings.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1269 ART OF ORAL COMMUNICATION
3 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman and sophomore year.

Catalog Description:

AGR 1269 – Art of Oral Communication (3 hrs.)
This course adds the terminology that is used in the agriculture industry and aids the student in developing the fundamental skills needed for private and public speaking experiences; elements in voice production and improvement, bodily movement, confidence, poise, and understanding of all types of public speeches.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this this course is to introduce the student to Agriculture terminology that is used in the industry and aid the student in the use of it as well as using it in a set of oral reasons.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate the ability to prepare and present a set of oral reasons for a livestock class using trade terminology.
2. Demonstrate enhanced verbal communication and interpersonal skills
3. Develop interpersonal skills suitable to the context and the audience.
4. Develop critical comprehension listening skills.
5. Demonstrate ethical speaking and listen with critical comprehension.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: TERMINOLOGY AND REASON PRESENTATION
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate the ability to prepare and present a set of oral reasons for a livestock class using trade terminology
- Identify desirable/undesirable carcass characteristics on the live animal and incorporate into a set of oral reasons
- Apply performance information to an animal's phenotype
- Apply terminology used in the industry
- Present oral reasons for the qualities of livestock to large audiences

UNIT 2: INTRODUCTION TO PUBLIC SPEAKING

Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate enhanced verbal communication and interpersonal skills.

- Demonstrate the format for competition
- Explain why the delivery system effects the acceptance of the oral reasons
- Illustrate how to effectively convey a prepared set of oral reasons
- Demonstrate or illustrate how body, posture, tone of voice and use of vocabulary can determine oral reasons

UNIT 3: PUBLIC SPEAKING TECHNIQUES

Outcomes: Upon completion of this unit, the students will be able to successfully develop interpersonal skills suitable to the context and the audience.

- Critique and analyze the content and delivery of a speech from an oral presentation.
- Demonstrate competence and poise in fielding audience questions and comments.
- Practice appropriate conversational mode through self-presentation and response to feedback.

UNIT 4: LISTENING TECHNIQUES

Outcomes: Upon completion of this unit, the students will be able to successfully develop critical comprehension listening skills.

- Recognize and identify key points.
- Identify and evaluate support material.
- Identify organizational relationships.
- Demonstrate main ideas, reasoning and evidence

UNIT 5: PUBLIC SPEAKING AND LISTENING PRACTICALITY

Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate ethical speaking and listen with critical comprehension.

- Demonstrate a willingness to listen when setting, speaker or topic may not be conducive to listening.
- Differentiate between statements of fact and inference.
- Distinguish between emotional and logical arguments, detect bias, and recognize the speaker's agenda.
- Recognize discrepancies between speaker's verbal and non-verbal messages.
- Demonstrate active listening skills.

Projects Required:
Varies, refer to syllabus

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:

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Grading Policy:
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Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1265 WEED SCIENCE
3 Credit Hours

Student Level:
This course is open to all students.

Catalog Description:

AGR 1265 – Weed Science (3 hrs.)
An introduction to different techniques used to control weed growth and destruction in farming operations.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this course is to give the agricultural students a good grasp of the economic impact that weeds have on cereal crop production.

Learner Outcomes:
Upon completion of the course, the student will:
1. Identify different weed families.
2. Recognize and define each weed species.
3. Demonstrate basic knowledge of weeds based off the variety of grain production.
4. Describe weed treatment methods.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: INTRODUCTION
Outcomes: Student will identify different weed families.

- Show a knowledge of what family a weed categorizes as.
- Demonstrate knowledge of what weeds are harmful to animal production.
- Perform weed identification.

UNIT 2: IDENTIFICATION
Outcomes: Student will recognize and define each weed species.

- Distinguish forage type.
- Identify necessary treatment and handling of different weed species.
- Explain the different type of reproduction relates to each weed.

- Demonstrate the knowledge of identifying weeds by biennial and perennial.

UNIT 3: EFFECTS ON PRODUCTION
Outcomes: Demonstrate basic knowledge of weeds based off the variety grain production.

- Identify the difference between common and noxious weeds.
- Define losses caused by weed growth.
- Define weeds harboring pests and diseases.
- Demonstrate the effects of weeds and land value.

UNIT 4: CONTROLLING WEEDS
Outcomes: Students will grasp basic knowledge of weed treatment methods.

- Determine natural agencies.
- Define man-made agencies.
- Illustrate knowledge of biological control measures.
- Demonstrate knowledge of chemical control measures.
- Show knowledge of flaming control measures.
- Demonstrate knowledge of cultivation control measures.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1277 AGRICULTURAL WORK EXPERIENCE II
1 Credit Hour

Student Level:
This course is open to students on the college level in either the freshman or the sophomore year.

Catalog Description:
AGR 1277 – Agricultural Work Experience II (1 hr.)
The purpose this course is give the student work experience necessary for the student to gain a job in his elected area of interest. This will be done by the student finding an internship with a company, local farmer, or through the Cowley Agriculture program, with the mentorship of the instructor. This is an internship course.

Course Classification:
Lecture

Prerequisites:
AGR1248 Agricultural Work Experience I

Controlling Purpose:
The purpose of this course is to provide the student with the opportunity to learn valuable employability skills, work ethics, and work experience necessary for the student to obtain and retain a career in Agriculture.   The student will experience in job seeking, application & interview, and workplace skills with the mentorship of the instructor.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate pre-employment techniques regarding job seeking and interview processes
2. Demonstrate soft skills and positive work ethic while employed

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: PRE-JOB PROCEDURES
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate pre-employment techniques regarding job seeking and interview processes.

- Compare potential entry-level positions
- Develop a working resume and cover letter
- Demonstrate interview skills (attire, punctuality, preparedness, follow-up)

UNIT 2: ON-JOB SOFT SKILLS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate

soft skills and positive work ethic while employed.

- Participate in the daily operation of the selected employer
- Comply will all regulations and safety procedures as outlined by the employer
- Complete summary of duties and outline of competencies developed
- Complete and submit proper reports/forms (supervisor review)

Projects Required:
Various, refer to syllabus

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
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Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

AGR 1280 SOILS FOR PRODUCTION
3 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman or the sophomore year.

Catalog Description:
AGR 1280 – Soils for Production (3 hrs.)
This course includes the basic chemical, physical and biological properties of soils as well as its formation, fertility and usage.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
The purpose of this this course is to provide the student with the knowledge and skill necessary to formulate rations to feed livestock and that the nutritional needs of the animal is being meet.

Learner Outcomes:
Upon completion of the course, the student will:
1. Demonstrate knowledge of the basic and applied chemical, physical, and biological concepts in soil.
2. Demonstrate knowledge of the origin, classification, and distribution of soils and their relationship to people and food production.
3. Demonstrate knowledge of the management and conservation of soils.
4. Demonstrate knowledge of the environmental impact of soil use.

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: INTRODUCTION TO BASIC SOIL SCIENCE
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate knowledge of the basic and applied chemical, physical, and biological concepts in soil.

- Describe soil formation and the classifying of soils as to their physical properties
- Apply the concepts of soil chemistry to soil fertility, its use and management
- Explain the importance of soil minerals and soil organic matter
- Identify and describe the physical properties of soils

UNIT 2: SOILS AND SOIL TYPES
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate knowledge of the origin, classification, and distribution of soils and their relationship to people and food production.

- Describe soil water as to its movement in the soil and its relationship to plants
- Explain the importance of soils to agriculture and the world economy
- Use the technical terminology associated with the description and use of soils.

UNIT 3: CONSERVATION AND MANAGEMENT
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate knowledge of the management and conservation of soils.

- Identify soil compaction and soil erosion problems and discuss what causes them
- Describe how field borings, laboratory analysis and aerial photography are integrated to create a soil survey map.
- Demonstrate the ability to interpret a web soil survey map and determine land use and soil management practices to apply to given areas
- Demonstrate skills required to make field observations and interpretations of soils for various uses.

UNIT 4: CLIMATE AND ENVIRONMENTAL EFFECTS
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate knowledge of the environmental impact of soil use.

- Locate and use information from a variety of sources for land use planning and soil management decisions.
- Explain the impact of land use and management decisions on agricultural productivity and sustainability, environmental and ecological health, and land degradation.
- Describe the ways in which soils are an integral component of the terrestrial ecosystem.
- Identify soil properties important to land use, environmental quality, plant growth and society/culture.

Projects Required:
Various, refer to syllabus

Textbook:
Contact Bookstore for current textbook.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy.

Course Time Frame:

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COWLEY COLLEGE COURSE PROCEDURE

INR 3735 INDUSTRIAL TECHNICAL WRITING
3 Credit Hours

Student Level:
This course is open to Career and Technical Education students after completing their program coursework or with instructor approval.

Catalog Description:

INR 3735 – Industrial Technical Writing (3 hrs.)
A course designed for the career and technical education student to understand and properly identify situations where different forms of documents are more appropriate than others. This course will discuss and review the importance of writing technically correct documents related to specific careers within industry. This course is designed for students to prepare and generate documents that could be utilized later as a guide in their career.

Course Classification:
Lecture

Prerequisites:
Assessment score of 63 or higher in reading

Controlling Purpose:
This course is designed to help the Career and Technical Education student increase their knowledge concerning their awareness and ability to convey the English language in a clear, concise manner to explain their thoughts in a well-organized, audience appropriate document. This course allows students to generate the proper document for the situation they are presented with.

Learner Outcomes:
Upon completion of the course, the student will be able to:

1. Properly clarify a specific point in written form
2. Choose the appropriate form of communication suited to the audience
3. Prepare an impersonal document (report) related to their respective industry
4. Select and document credit to the references used to prepare the document
5. Generate an impartial document that is not fault finding
6. Prepare a technically correct document
7. Prepare a reliable and valid document

Unit Outcomes for Criterion Based Evaluation:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: FOCUSING THE TOPIC AND GENERATING RELEVANT IDEAS
Outcomes: The student will be able to choose the appropriate form of writing.

- Review and Critique professional writing samples
- Assess the benefits of using different forms of communication
- Construct different forms of communications
- Generate ideas for varying forms of communications
- Define and outline the appropriate audience for the communication

UNIT 2: PLANNING AND DRAFTING THE DOCUMENT
Outcomes: The student will be able to develop a technically correct document.

- Form a thesis statement that will reflect the purpose and scope of the document
- Organize the information into a logical sequence
- Compose the document in an audience appropriate manner
- Review the information to ensure the document reflects the situation
- Develop rough drafts of the document

UNIT 3: REVISING THE DOCUMENT
Outcomes: The student will be able to develop a reliable and valid document

- Critique and assess the ability of the document to produce repeatable results
- Modify the document to produce repeatable results
- Critique the document to ensure technically accurate results
- Modify and revise the document to ensure accurate results

UNIT 4: FINALIZING THE IMPARTIAL DOCUMENT
Outcomes: The student will be able to recognize the importance of generating documents that are impartial to both sides of a situation.

- Investigate the situation to ensure information received is impartial to either side
- Differentiate the information to remove criticisms and form a factual document
- Produce the rough draft(s) and allow both parties to critique the document
- Finalize the technically accurate, impartial document
- Produce a final, aesthetically pleasing document

UNIT 5: TECHNICAL INSTRUCTIONS, MANUALS, AND REPORTS
Outcomes: The student will be able to generate and utilize technical work documents.

- Understand and interpret technical task descriptions and procedures that will be utilized during the student's respective program
- Evaluate and interpret instructions in equipment operation manuals or procedures that will be utilized within the student's chosen program
- Produce a set of work instructions that can be utilized by another individual to safely perform a task within the classroom / lab environment

Projects Required:
Various, refer to syllabus

Textbook:

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Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
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Maximum class size:
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Course Time Frame:
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COWLEY COLLEGE COURSE PROCEDURE

CIS1958 NETWORK+
3 Credit Hours

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:
CIS1959 – Network+ (3 hrs.)
This course will prepare students for the CompTIA Network+ certification. The topics will include networking concepts, cabling, wireless networking, cloud computing, network risk management, unified communications, network segmentation/virtualization, wide area networks, and industrial/enterprise networking.

Course Classification:
Lecture

Prerequisites:
None.

Co-requisites:
None

Controlling Purpose:
This course is designed to prepare students to set up, install, and protect computer networks. These concepts provide a foundation for further courses involving networking and preparation for the Network+ certification test.

Learner Outcomes:
Upon completion of the course, the student will be able to explain networking concepts, cabling, wireless networking, cloud computing, network risk management, unified communications, network segmentation/virtualization, wide area networks, and industrial/enterprise networking. The student will be able to set up and secure a simple network.

Units Outcomes and Criterion Based Evaluation:
The following outline defines the minimum core content, not including the final examination period. Instructors may add other material as time allows.

UNIT 1: Introduction to Networking
Outcomes: Demonstrate knowledge of the basics of networking including protocols, client-server models, peer-to-peer models, networking hardware devices, OSI model, best practices, and the seven-step troubleshooting model.

- Identify types of applications and protocols used on a network
- Distinguish between the client-server and peer-to-peer models used to control access to a network
- Describe various networking hardware devices and the most common physical

topologies
- Describe the seven layers of the OSI model
- Explore best practices for safety when working with networks and computers
- Describe the seven-step troubleshooting model for solving a networking problem

UNIT 2: Computers Communicating on Networks
Outcomes: Demonstrate the knowledge necessary to identify how computers communicate on a network including hostnames, domain names, ports, sockets, IP address, OSI Transport layer, and the OSI Network layer.

- Describe how computers and other devices are addressed on a network
- Explain how hostnames and domain names work
- Identify how ports and sockets work at the OSI Transport layer
- Demonstrate how IP addresses are assigned and formatted at the OSI Network layer
- Use command-line tools to troubleshoot problems with network addresses

UNIT 3: Transportation of Data Over Networks
Outcomes: Explain how data is sent over networks including TCP/IP protocols, routing, IPv4 and IPv6 routing protocols, and use TCP/IP utilities.

- Identify and explain the functions of the core TCP/IP protocols
- Explain the purposes and properties of routing and describe common IPv4 and IPv6 routing protocols
- Employ multiple TCP/IP utilities for network discovery and troubleshooting

UNIT 4: Structured Cabling and Networking Elements
Outcomes: Explain and set up cabling and networking elements as well as troubleshooting network devices.

- Identify the best practices for managing network and cabling equipment in commercial buildings and work are
- Explain issues related to managing power and the environment in which networking equipment operates
- Describe characteristics of NIC and Ethernet interfaces
- Troubleshoot network devices and create a network map to be used for network troubleshooting

UNIT 5: Network Cabling
Outcomes: Describe the basics of network cabling including basic data transmission concepts, coaxial cabling, STP, UTP, fiber-optic media, networking media, connectors, converters, couplers, and usage of tools for troubleshooting network cabling problems.

- Explain basic data transmission concepts, including signaling, data modulation, multiplexing, bandwidth, baseband, and broadband
- Describe the physical characteristics and Ethernet standards of coaxial cable, STP, UTP, and fiber-optic media
- Compare the benefits and limitations of different networking media
- Explore the connectors, converters, and couplers for each cabling type
- Examine common cable problems and differentiate between various tools for

troubleshooting those problems

UNIT 6: Wireless Networking
Outcomes: Explain the basics of wireless networking, including nodes, obstacles, WLAN, WLAN transmission methods, wireless access points, wireless security concerns, and evaluation of common problems.

- Explain how nodes exchange wireless signals
- Identify potential obstacles to successful wireless transmission and their repercussions, such as interference and reflection
- Understand WLAN (wireless LAN) architecture
- Specify the characteristics of popular WLAN transmission methods, including 802.11 a/b/g/n/ac
- Install and configure wireless access points and their clients
- Explore wireless security concerns
- Evaluate common problems experienced with wireless networks

UNIT 7: Cloud Computing and Remote Access
Outcomes: Explain cloud computing, remote connection methods, VPNs, methods of encryption, user authentication protocols, and symptoms of connectivity and security problems with remote connections.

- Identify the features and benefits of cloud computing
- Explain methods for remotely connecting to a network
- Discuss VPNs (virtual private networks) and the protocols they rely on
- Understand methods of encryption, such as IPsec, SSL/TLS, SFTP, and SSH, that can secure data in storage and in transit
- Describe how user authentication protocols such as RADIUS, TACACS+, EAP, and Kerberos function
- Recognize symptoms of connectivity and security problems commonly encountered with remote connections

UNIT 8: Network Risk Management
Outcomes: Explain network risk management, including various security risks, effective security policy, security measures and devices, and prevention/response to malware infections.

- Assess a network's security needs and vulnerabilities
- Describe security risks associated with people, hardware, software, and Internet access
- Discuss the elements of an effective security policy
- Apply appropriate security measures and devices when designing a network
- Prevent and respond to malware infections

UNIT 9: Unified Communications and Network Performance Management
Outcomes: Explain network management, including basic concepts, system and event logs, unified communications performance, three common quality of service technique, and troubleshooting techniques.

- Describe the basic concepts of network management
- Utilize system and event logs to evaluate, monitor, and manage network performance

- Explain how unified communications, including voice and video transmissions, affect network performance
- Explain three common quality of service technique
- Troubleshoot network availability issues and evaluate network redundancy measures

UNIT 10: Network Segmentation and Virtualization

Outcomes: Explain network segmentation and virtualization concepts including methods of network design, virtual network components, incorporation of virtual components in VLANs, switches, switching techniques, and methods of combining VM and VLAN technologies.

- Describe methods of network design unique to TCP/IP networks, including subnetting, CIDR, and supernetting
- Explain virtualization and identify characteristics of virtual network components
- Describe techniques for incorporating virtual components in VLANs
- Explain the advanced features of a switch and understand popular switching techniques, including VLAN management
- Identify methods of combining VM and VLAN technologies

UNIT 11: Wide Area Networks

Outcomes: Explain wide area networks including uses, WAN topologies, characteristics of WAN technologies, WAN transmission and connection methods, wireless WAN technologies, and common problems with WANs.

- Identify a variety of uses for WANs
- Explain different WAN topologies, including their advantages and disadvantages
- Compare the characteristics of WAN technologies, including their switching type, throughput, media, security, and reliability
- Describe several WAN transmission and connection methods, including dial-up, ISDN, T-carriers, frame relay, DSL, broadband cable, broadband over power line, ATM, SONET, MPLS, and Metro Ethernet
- Describe wireless WAN technologies, including 802.16 (WiMAX), HSPA+, LTE, and satellite communications
- Explore common problems with WAN connections and ways to prevent Internet connection problems

UNIT 12: Industrial and Enterprise Networking

Outcomes: Explain industrial and enterprise networking, including industrial control systems, SCADA, network assets, change management procedures, physical security controls, and components of a disaster recovery plan and incident response plan.

- Identify significant components of an industrial control system or SCADA system
- Inventory and manage network assets and identify significant business documents
- Create and follow appropriate change management procedures for major and minor network changes
- Identify significant physical security controls to limit or monitor access to secure are
- Describe the components of a reliable disaster recovery plan and a defensible incident response plan

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
None

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:
402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.

COWLEY COLLEGE COURSE PROCEDURE

PHO6460 ETHICS
3 Credit Hours

Student Level:
This course is open to students on the college level in either Freshman or Sophomore year.

Catalog Description:

PHO6460 - Ethics (3 hrs.)
[KRSN PHL1020]
A practical approach to recognizing, understanding and solving ethical problems confronting individuals in today's society. Basic concepts of applied ethical theories in moral philosophy and reasoning are examined using critical thinking and responsible decision making skills.

Course Classification:
Lecture

Prerequisites:
None

Controlling Purpose:
This course is designed to help the student examine a variety of social personal and professional ethical issues and problems and learn methods of resolving the issues through the use of critical thinking skills, ethical reasoning and legal and professional codes of conduct.

Learner Outcomes:
- The student will understand the historical development of ethical thinking, considering ideas from early
- Greek to contemporary philosophers
- The student will recognize and analyze a variety of ethical issues when confronted with examples of
- situations containing such issues
- The student will understand the multi cultural aspects of ethics
- The student will apply critical thinking skills, ethical principles, and logical reasoning processes to resolve
- ethical issues

Core Outcomes
The learning outcomes and competencies detailed in this course meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as sanctioned by the Kansas Board of Regents.

Units Outcomes and Criterion Based Evaluation Key for Core Content:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

UNIT 1: CONFLICT OF INTEREST
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Identify possible sources of one's "sense of right and wrong"
- Classify matters as non-moral or moral
- Explain how story-telling assists in decision making
- Compare and contrast "moral virtues" with "intellectual virtues
- Trace the development of modern theories of virtue
- Recall what a "study of ethics" should provide us

UNIT 2: MORAL THEORY AND DEVELOPMENTAL REASONING
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Summarize the theory of self realization
- Describe key elements of Aristotle conceptual framework often adopted by Christians
- Compare and contrast metaethics with normative ethics
- Identify the sources from which the Divine Theorist is to determine the Will of God
- Evaluate Kohlberg's stages of moral development

UNIT 3: SOCIAL ISSUES: ABORTION AND DEATH AND DYING
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Name four specific kinds of conflict that the abortion issue can reflect
- Role play the abortion issues as they impact the wider family circle
- Distinguish between killing suicide, assisted suicide, homicide on request and mercy killing
- Summarize arguments in support of moral difference between active killing and allowing to die

UNIT 4: BIOETHICS AND SEXUAL ETHICS
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Summarize the core principles of the Hippocratic Oath
- Evaluate the positions for and against the "principle of truth-tellings"
- Evaluate medical proposals used in a social dimension as they relate to disease, organ procurement, and scarce medical resource
- Outline the history of sexual ethics from the period of the ancient Hebrews through the Sexual Revolution
- Identify factors contributing to liberal sexual standards of periods in American History
- Give examples of how "consent" is not the only factor involved in determining the morality or immorality of sexual behavior

UNIT 5: PORNOGRAPHIC/PUNISHMENT
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Compare and contrast elements of "Roth" and "Miller" tests for obscenity
- Discuss and evaluate legislation governing pornography
- Identify and discuss aspects of punishment as a philosophical problem

- Explain the concept of "foreseeing the consequences" regarding the punishment issue
- Describe "mixed" and "Integrative" approach to punishment
- Identify an environmental problem and apply problem solving steps to eliminate or reduce the problem

UNIT 6: ISSUES: WAR/ECONOMICS
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Name possible international standards to which nations can refer in deciding issues of war
- Discuss and develop methods for ethical matters as they pertain to the issues of pacifism and war
- Compare and/or contrast the moral requirements for responding to world hunger

UNIT 7: ISSUES: BUSINESS AND PREOFESSONAL RESPONSIBILITY
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Explain the three levels of ethical behavior that affect people
- Identify characteristics elements of the professional structure
- Compare and contrast the ethical power standards for individuals as identified by Kenneth Blanchard and Norman Vincent Peale
- Name two advantages and two disadvantages of the participatory management model
- Explain and justify the "corporate culture" concept

UNIT 8: SOCIAL IMPLICATIONS IN BUSINESS
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Name and explain the three concepts in favor of and against the ideals of social responsibility
- Discuss the pyramid form of corporate governance
- Differentiate between and discuss the stockholder and the stockholder models
- Identify lessons learned from successful businesses with regard to pursuing ethical standards
- Describe the positive role of criticism in the workplace
- Summarize basic constitutional rights in the workplace and name the moral conflicts confronting anyone who considers "blowing the whistle"

UNIT 9: WORKPLACE DISCRIMINATION
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Summarize various federal enactments in the field of fair employment law
- Explain how increased education might translate into occupational gains
- Identify two examples of people who have achieved despite obstacles of prejudice
- List and discuss examples of the social cost of bias
- Outline the history of libel law in the US

UNIT 10: CODES OF ETHICS
Outcomes: Upon Completion of this unit, students will be able to successfully…

- Recall factors leading to federal and state campaign finance reform
- Explain how codes of ethics vary
- Discuss the code of ethics with present day applications
- Compare and contrast professional and corporate code of ethics

Projects Required:

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:

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